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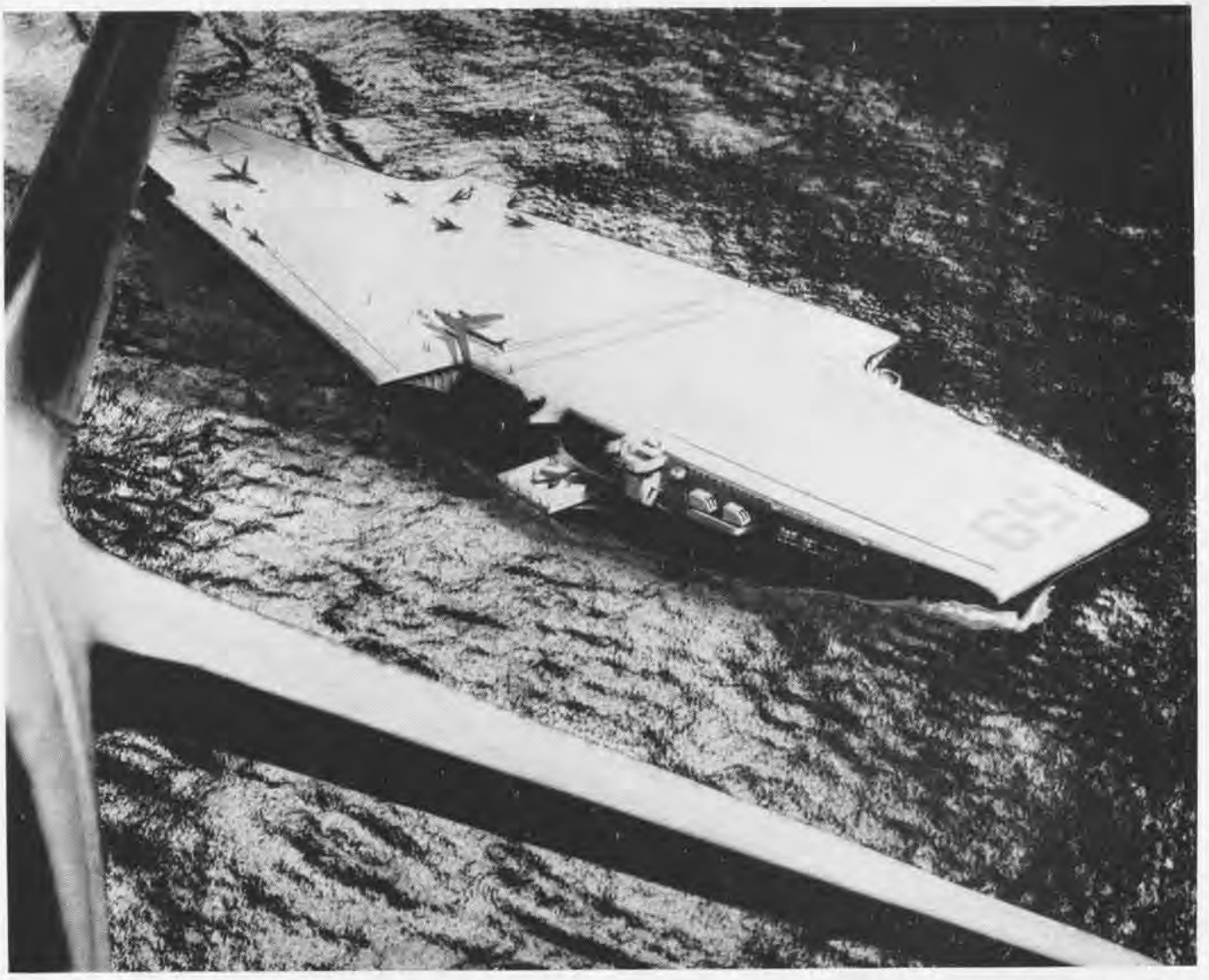
JET AIR SCOOPS FOLLOW MANY DESIGNS

Many types of air scoops appear on today's newest jet planes, all the way from nose scoops like the hog-nosed North American FJ-2, top left, to a dorsal air door on the AJ which is flush with the top of the fuselage. The P4M's air scoop retracts into the nacelle when only the prop engine is running. The new Lockheed **Starfire's** scoop (top right) is forward of the wing, a "cheek" scoop. The nose contains radar and 24 **Mighty Mouse** 2.75" rockets. The photo shows nose doors open for rocket firing. In the center pictures are shown the air scoops of the F7U-3 and the odd vents in the wing leading edge of Britain's Vickers 660 **Valiant,** that country's first four-jet bomber, powered by Rolls Royce **Avon** jets. A pair of strange scoops are found on the new Gloster GA-5 delta-wing fighter developed by the British, lower left photo. Two Armstrong Siddeley **Sapphire** jets power this high speed experimental plane. In the last picture is a conventional nose scoop in the Fairey E10, a **Derwent**-powered delta wing plane. British aviation circles are "high" on the GA-5 **Javelin** as an interceptor, equipped with radar to detect high-flying bombers. It has exceeded the speed of sound and may do still better if rumored use of the more-powerful **Olympus** jets materializes each with 9,750 pounds of jet thrust.



ATTACK FLATTOPS

CHIEF Nuclearman Joe Hassel of the aircraft carrier USS *South Mountain* had just completed adjusting his engineroom air conditioner when the bridge rang up 45 knots on the telegraph. Joe turned to his console of gages and cracked the throttle a quarter turn to bring the reactor temperature up a notch, then switching on the intercom to the reactor room, he ordered the fission fireman of the watch to inject two more cubics of U-608 onto the atomic pile.

As the chief was giving this order, he automatically recorded it in his log. The date at the top of the page was 1962.

The *South Mountain's* topside was humming with activity. From four powerful "steam slingshots" on her sleek flush deck, supersonic fighters and attack bombers were hurtling into the air. Eight minutes after the chief nuclearman cracked his throttle, 100 planes of the air group were enroute to attack enemy submarine pens hundreds of miles from the fleet.

Fiction? Certainly, but maybe not as far fetched as you think for ten years in the future. Atomic powered ships are already in the realm of practicability, steam catapults have been proved, and two carriers of the *Forrestal* class have been authorized.

Each month since the end of World War II has seen some improvement in aircraft carriers, but because of the limitations of existing carriers left over from that war, aircraft design has kept ahead of the carriers that will be handling the finished product of the designers' boards.

Only 30 years have intervened between the first United States ship to bear the aircraft carrier label, the USS *Langley*, and the two new *Forrestals*. The *Langley*, built as an experiment, was an old collier fitted with an overhead platform for a flight deck.

The USS *Forrestal* and the new USS *Saratoga* are no experiments. They will be products of 30 years experience, in carrier operations under all conditions.

IF YOU'VE ever tried to fix a leaky faucet at home, you know it can't be done without the proper tools. Any workman needs the best and the proper tools to do his best job.

The mission of a Navy is to gain and maintain control of the seas in time of war. Today we cannot control the sea without controlling the air over the sea. Naval Aviation's task is to gain that control. The aircraft carrier is the tool needed to do the job.

Control of the seas may not automatically win a war for America, but lack of that control will most certainly lose it.

George Washington had the word on this even in his day when he communicated with Rochambeau via Lafayette during the Revolution. He told the Frenchman, "In any operation, and under all circumstances, a decisive naval superiority is to be considered as a fundamental principle, and the basis upon which every hope of success must ultimately depend."

One type of ship only cannot exercise control of the seas, but the most potent weapon of the Navy today is the aircraft carrier. It is a mobile—and elusive—floating airbase which can roam at will over three-quarters of the globe to project its aircraft into the spots where they are needed.

Its air group can reach any forces that may dispute our control of the sea: enemy air power and its bases, and enemy submarines and their bases. It can destroy enemy shipping and control the air over our attack points.

Land-based air and carrier-based air are two different tools for two different jobs. Both are needed to wage war successfully. They are complementary, not competitive.

Carriers can concentrate more planes over any naval target than can be mustered from shore bases up and down the coasts. At the same time they themselves present a smaller and more elusive target. Land bases are fixed, and are known targets for fast moving carrier forces.

Control of the seas is a double-edged blade: it denies the seas to the enemy and at the same time keeps them open to our own use.

In wartime, oceans become the highroads to victory for the nation that controls them. Rivers of gasoline, mountains of food, acres of weapons and hordes of men must be moved overseas, and the flow of strategic imports must be maintained to gain mastery over an enemy. Air transport is no substitute.

While the atomic-powered carrier and nuclearman and fission fireman ratings are still a thing of the future, let's take a closer look on what is being done to make 1952 attack carriers the best tool possible for the job at hand if war should come soon. Attack carriers, CVA's, include the former CV's and CVB's of the *Essex* and *Midway* classes as well as the *Forrestals*.

From the *Langley's* 534' x 64' flight deck LCdrs. V. C. Griffin and G. deC. Chevalier and Cdr. Kenneth Whiting, respectively made the first U. S. carrier free-deck takeoff, landing and catapult takeoff in 1922. Griffin flew a VE-7-SF, Chevalier an Aeromarine, and Whiting a PT.

These post-World War I aircraft were typical of their time—slow, small, light and single-engined. Conversely, 1952's carrier-borne aircraft designs are fast, large, heavy, and as likely as not, multi-engined.

As the designer increases aircraft range, payload and speed, he usually increases its size and weight. To take these planes into combat, aircraft carriers must do the same thing, i.e., increase in size and weight.

ANTIETAM AND DD REFUEL FROM TANKER WHILE ESSEX WAITS TURN. SUCH OPERATIONS AT SEA PROVIDE UNLIMITED TASK FORCE RANGE

Unfortunately carrier plane engineering has been limited by the size of existing carriers. The point was reached some time ago when the compromises in plane design against carrier size could no longer be made and still deliver modern plane performance.

If orderly progress in the development of Naval Aviation was to be continued, it was necessary to introduce a new class carrier at this point. This will be realized in the much delayed *Forrestal* class.

In the three decades between the *Langley* and the *Forrestals*, flight decks have only doubled in size, while carrier aircraft have grown from Griffin's 3,000 lb., 130 knot VE-7 to the modern 51,000 lb., 350 knot AJ-1. The 1952 *Savage* is about seven times heavier than its honorable predecessor, and it is jet and prop-propelled. This fact suggests a chain of reasons why carrier design has to keep moving forward.

Bigger weapons, and bigger planes to carry them, demand more aviation ordnance space. Late electronics equipment re-

quires additional shipboard servicing space. High fuel consumption of jet engines requires greater aircraft fuel storage capacity. All of these factors will logically increase an attack carrier's over-all dimensions.

To name a few additional reasons for the need of progress in carrier design: elevator size and hangar deck space must be increased to handle larger modern aircraft: increased landing speeds, as does increased weight, require stronger decks and arresting gear. More catapults are needed for faster launching.

When the Navy first started operating jet-powered aircraft aboard carriers shortly after the close of World War II, little was actually known about their effects on operating procedures. Since then some new operating techniques have been adopted, but the effect of jets on carrier design requirements has been far reaching.

Because of short takeoff areas on flight decks, and slow acceleration of jet aircraft, these planes take off with the aid of catapults rather than the free-deck runs as is common with piston-powered planes.

The comparative high fuel consumption and speeds of jets require that they be launched after, and be landed before, piston-propelled aircraft when these types operate together from the same ship.

Other problems of jet operations did not turn out to be as serious as at first expected. The danger of jet blast is limited to only a small area immediately aft of the tail pipe. In most cases, even the most careless man would be warned by the heat before he could get too close for injury.

ONE MUST take stock of the carrier situation in the Navy today to understand how these problems are being met.

The best World War II carriers were designed in 1940. These were the 27,000-ton *Essex* class. Twenty-four were built: none was sunk; 11 are on active duty right now and the balance are in "mothballs".

The *Essex* carriers can handle about 100 planes and a wartime complement of approximately 2,500 men. Flight deck dimensions are 862′ x 108′.

In an attempt to adapt the *Essex* class to modern aircraft, modifications are being made in these ships. This modernization program is projected over several years, but the point of diminishing returns is rapidly approaching when the 1940 *Essex* design cannot be adapted to up-to-date aircraft.

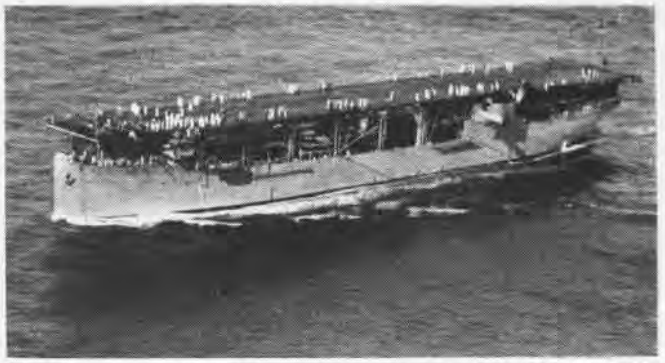
The *Wasp, Essex, Oriskany* and *Kearsage* have already been "modernized". Several will complete their modification this year, and others are scheduled for later.

One possible solution to help prolong the usefulness of these ships is canted decks. The first ship to get one on an experimental basis will be the *Antietam*.

The flight deck landing area will be built on about an eight degree cant from the carrier's centerline. Although the *Antietam* will not have it, this allows a third catapult to be installed to increase launching capabilities, useable landing area length is increased, and personnel and parked planes are out of the line of flight of landing planes.

Canted deck carriers will have only six arresting wires. Need for barriers will be eliminated because the clear area ahead will allow planes missing the wire to take off again for another pass. A special emergency barricade can be rigged to take aboard aircraft with inoperative hooks. By keeping parked aircraft out of the line of flight of those landing, respotting problems are reduced and landing hazards to parked planes and personnel are also cut down.

Simulated canted deck tests have been made on the *Midway*. No great operating problems were discovered. Obviously the best condition for landings is to have the relative wind directly down the centerline of the canted deck. Except in a dead calm, this can be obtained with no difficulty.



OLD LANGLEY'S DIMINUTIVE FLIGHT DECK WAS ADEQUATE IN 1920'S

YORKTOWN GETS FACE LIFTING DURING MODERNIZATION AT PUGET SOUND

NEW F2H-3 AND F7U-3 FIGHTERS ON MIDWAY DURING RECENT CAR-QUALS

PLANES OF TODAY NEED BIGGER ELEVATORS AND HANGAR DECK CAPACITY

Canted decks will save topside weight because longer run-out arresting gear can be used. Weight can be saved on the aircraft themselves because they will not have to be built to withstand as great arresting loads as the shorter run-outs of the older types.

The canted deck concept offers other possibilities in meeting the needs of modern aircraft aboard carriers. The *Antietam* installation should reveal them more fully.

THE LARGEST carriers now in the fleet are the three members of the 1943-designed *Midway* class. Like the *Essex* carriers the *Midways* can be modernized to improve their capabilities for operating larger aircraft.

Congress has appropriated funds for two of the modern *Forrestal* class. These will displace 60,000 tons and have a 1020′ flush, flight deck as compared with the *Midway's* 45,000 tons and 924′. Their 25′ hangar deck clearance is seven and a half feet higher than the *Midway's*.

The *Midways* are large and heavy enough to handle the 51,000-lb. AJ-1 attack bomber. The *Forrestals* will be able to take care of aircraft about two times larger than the AJ.

To make launching twice as fast as was previously possible, the first *Forrestal* will have four instead of the usual two catapults. They will be of the new steam variety. Four elevators for plane handling will be available instead of the three as on the *Midways* and *Essexes*.

The entire island structure on the *Forrestals* will be retractable to below flight deck level. Unobstructed takeoffs and landings of large wingspan aircraft will then be practicable.

Capt. P. W. Snyder, head of the ship design section of BUSHIPS, is guiding the progress of the design of the *Forrestal*. Its specialized aeronautical features, such as catapults, are under the direction of Capt. Sheldon W. Brown, director of the ships installation division of BUAER. The CVA-59 should join the fleet in 1955.

Any war that should come prior to then will of necessity be fought with the carriers now on hand. Because of their availability and numbers the modernized *Essexes* will be carrying the bulk of the load. Although the *Essexes'* adaptability to modern aircraft design is reaching the point of diminishing returns, they are still a potent weapon.

Modernized *Essex*-class CVA's with strengthened flight decks have greater capacity elevators and catapults, and have greater fuel storage space. Blisters have been added to each side of the hull to increase stability and underwater protection.

Operating areas on the flight deck have been increased by the removal of the gun mounts fore and aft of the island, and shifting them to the catwalks. The island structure itself has taken on a new more streamlined appearance because of relocation of interior spaces.

In case of fire or other emergency, sections of the hangar deck can be isolated by electrically operated doors. New fog-foam fire fighting equipment has been installed for effective combatting of gasoline fires.

A big improvement in the modernized *Essexes* are their new catapults with approximately twice the capacity of those they replaced. The Naval Aircraft Factory's Cdr. Warren W. Ford, and H. S. Hinchman, and BUAER's F. B. Gross and J. E. Scholl are largely responsible for these catapults without which operations of modern jets from carriers would be almost impossible.

The most important recent carrier development is the new high-capacity British steam catapult which proved so successful in recent tests aboard the HMS *Perseus*. The "Steam Slingshot" is powerful enough to hurl a modern fighter into the air even while the carrier is cruising down wind or is stationary alongside a dock.

The first American installation of these will be on the *Hancock* which is scheduled to complete her modernization in 1954. The "Steam Slingshots" are now being made in the United States, and NAMC PHILADELPHIA will test the first American-built job.

Invented by C. C. Mitchell of Brown Brothers & Co., Ltd. of Edinburgh, the steam catapult uses the principle of the slotted cylinder with no rams or purchase cables. A piston driven by high pressure steam from the ship's boilers is the launching media when connected directly to the aircraft by means of a hook.

DURING the *Perseus* tests, 140 launchings of both aircraft and deadweights were made. The British had previously launched 126 aircraft and 1,000 deadweights during tests with the catapult.

To absorb safely the violence of the landings of heavier and faster landing jet aircraft, greater capacity arresting gear with improved control valves and longer runouts have been

GREATER PERFORMANCE OF MODERN AIRCRAFT LIKE THIS AJ-1 CATCHING THE MIDWAY'S WIRE DEMAND GREATER CARRIER PERFORMANCE

installed on modernized carriers.

Special barriers, or emergency stopping devices, have been added to accommodate tricycle landing geared aircraft with the least amount of damage possible. Formerly the barrier was constructed of steel cables which could be raised or lowered ahead of the landing area to act as a stopper in case the plane missed one of the arresting wires farther aft with its tail hook.

The "Davis Barrier" currently in use on carriers is a modification of the old type by the addition of a fabric adapter designed by S. V. Davis of the Naval Aircraft Factory. When the adapter is engaged by the nose wheel, the cross deck steel cables of the barrier are thrown up in position to engage the plane's main landing gear. Usually little damage is done to the aircraft.

A possible new problem of jet operations aboard carriers which is not yet completely explored is the effect of high intensity noise levels on exposed flight deck personnel. A joint project of BuAer and BuMed is studying afterburner-equipped engines' noise levels. Some of these studies were conducted aboard the USS *Coral Sea*.

Perhaps new high noise levels created by the afterburner-equipped engines will be capable of having serious physiolog-

BUG-LIKE F7U'S BULK REQUIRES KING-SIZED CATAPULT PERFORMANCE

ical effects on exposed personnel unless they are equipped with some means of protection against the noise. Men who cannot leave the areas of highest sound levels because of their duties will be especially affected. Highest noise level conditions occur just before and during catapult launches in the catapult area.

One of the obvious effects of high intensity noise is the effect on hearing, which is severe. Thus far only temporary hearing losses have followed exposure of personnel to intense sound from jet aircraft engines. However, it is possible that this may not be the most serious effect to be considered.

The effect of high intensity sound vibrations in the low frequency range which are present in the sound field of afterburner-equipped engines is extremely unpleasant. In some cases it has been intolerable to individuals. As an indication of the seriousness of the problem some persons have experienced "weakness of the knees" to the point of collapse upon entering the sound field. Fortunately this effect is only temporary and recovery is immediate and complete upon leaving the sound field.

This of course is only an indication of the possible effects of high intensity noise levels. The *Coral Sea* and continuing studies will determine the habitability of catapult areas, navigating bridge and primary fly control in respect to expected noise levels.

Additions to new and modernized carriers that don't meet the eyes of even experienced observers are the new facilities for increasing aircraft fueling and defueling. This cuts down the time between strikes and has the effect of adding more aircraft to the carriers' striking power. Jet starting electrical outlets, alternating current, as well as new servicing and testing facilities have been added.

Among fleet personnel one of the most talked about inno-

BIG MIDWAY-CLASS CARRIERS WERE DESIGNED ALMOST TEN YEARS AGO

vations on the modernized *Essex's* is the escalator on the starboard side connecting the hangar and flight decks. Among other benefits this will cut down pilot fatigue and lost time prior to the all-important strike launches.

Programs for modernizing the other older classes of carriers in a manner similar to the *Essex's* is planned, but it is dependent on available funds and naval shipyard capacity.

Adm. William M. Fechteler has stated, "No prearranged base on foreign soil is required as a preface to the use of carriers. Carrier task forces are self-sustaining and replenish themselves at sea. During the Okinawa campaign of World War II carrier task forces remained continuously at sea off Japan and Okinawa for a period of 87 days and could well have remained longer if the campaign had been extended.

"A fast carrier task force containing four large carriers," continued the Admiral, "can deliver to shore targets in one month the same weight of conventional explosives as the entire German Air Force delivered on English cities in either of the peak months of the blitz."

In the 1941-45 war, the U. S. Navy had 110 carriers of all types from the large, fast *Essex*-class to the small, snail-like CVE's. These ships spent a collective total of over 78 years in combat zones operating around the clock in all kinds of weather.

Only 11 were lost, and none was of the *Essex* class. No large carrier was lost to land based air. This averages out to one carrier lost during each 85 months of combat operations.

During one 13-day period off Japan, carrier aircraft destroyed over 2,000 Jap planes on the ground of their land bases. At the same time the carriers were attacked by 141 of the world's most accurate guided missiles—*kamikazes*. All were shot down. No carriers were lost.

This was in World War II. With modern improvements in underwater compartmentation, firefighting methods and equipment, and dispersal against atomic attack, carriers are now even tougher nuts to crack.

The Navy is doing the best it can to keep the 1940 and 1943-designed carriers up to the requirements of late-designed aircraft, but this is not enough. More of the completely modern *Forrestals* are needed to handle aircraft of the future.

The United States now enjoys air supremacy at sea. That advantage must be maintained and exploited. It will not come automatically. Sea lanes are America's lifelines.

GRAMPAW PETTIBONE

More About Flares

Dear Grampaw Pettibone—

I am an avid fan of your column; however, the September issue contains a letter with which I believe I can rightly take exception. I refer to the discussion of the Mk 13 day-night distress signal, in which the correspondent claims: "Actually the pilot's .38 caliber revolver loaded with tracer ammunition . . . is his best signaling device. The advantages of a .38 are: repeated operation, simple use (just a pull of the trigger), and a higher trajectory that can be seen many miles further than a life raft flare."

There can be little argument that the pistol has an advantage by virtue of its multiple loads. However, a man who is badly shaken up may get a sense of false security from this knowledge and foolishly expend his shots. Then, if it is difficult to fire the day-night signal, think how difficult it would be to reload a revolver.

A pistol is simple enough to fire, but only after the pistol is held properly in the hand. It will probably be carried in a shoulder holster, under the life jacket, and well secured to withstand the opening shock of parachuting. Getting the pistol in hand for firing with "sticky, wet" gloves on is not easy, particularly if the life jacket is inflated. If it were worn under an immersion suit, it would be virtually impossible.

The high trajectory of tracer ammunition is desirable, but the intensity of light (and therefore, visibility) is low—several hundred times less than the flare—and the duration, something less than five seconds, is only about one-fourth as long as the flare which burns about 18 seconds. A searcher will see the flare in his peripheral field of vision (eg. out of the corner of his eye) even at a distance, whereas it is unlikely that he will see tracer fire unless he is looking nearly directly at it. Even if he does spot it at an angle, it is gone so quickly that he has little chance of getting a bearing or estimating range.

Tracer bullets are virtually worthless under any conditions short of complete darkness. The signal flare is provided with orange smoke, which is very effective under daylight conditions. The high light intensity of the flare makes it visible even under twilight conditions.

I am all in favor of improving equipment at every opportunity. However, I do not believe that the derogatory remarks directed at the day-night distress signal are warranted, and I am certain that any transfer of confidence from this signal to .38 caliber tracer ammunition is a serious mistake. I am sure that a survivor who had difficulty operating the signal flare would have equal difficulty in getting his pistol out and firing it. I hope that the published letter will not result in a wholesale disregarding of the day-night distress signal, but rather that it may stimulate additional interest in learning how to use it properly under more adverse conditions.

The end of the day, all crash reports read
Gramp's tuckered out and ready for bed.
But he thinks a thief might pry open a sash
So he plays it safe and sleeps with his cash.

It is also worthwhile to note that in the hypothetical situation presented in the letter, the pilot made no concerted effort to clear the cockpit *with* the parachute and seat pack—("The chute and seat pack is heavy and fit snugly. *Maybe* it's caught. Can't waste time—*must get out of the harness.*") This would leave him without a life raft, a serious situation, particularly in cold water. Only as a *last resort* should a parachute and life raft be abandoned when ditching.

I want to thank you for much instructive and stimulating reading in the past, and look forward to many more interesting situations as you present and comment on them in the future.

Sincerely yours,
Lieutenant (MSC), USNR

Dear Gramps:

Mission accomplished on your article regarding the day-night Flare in your September issue. The "designers of this type of equipment" are "breaking out their drawing boards" as you suggest in order to do what we can to rectify a very justifiable complaint. These things were designed for surface use. We'll try to make them a little more airworthy.

There are some problems involved in trying to make something of this nature easy to operate. I would not like to see you write about them being *too* easy to operate and inadvertently give Dilbert a hot foot or worse.

Maybe this experience will point out the advisability of squadrons spending a few minutes refresher on how to use this signal. It takes a while to make changes and these things will be with us in their present form for some little time.

I am glad to see some advertising for use of the 38 for signaling and wonder how many pilots have realized this. Strangely enough, this is the reason for the tracers in the 38.

The Bureau of Ordnance welcomes constructive criticism and suggestions on its equipment. If anymore of your grandchildren are sitting off in the corner with gripes such as this, tell them to send them in. Thanks, Lieutenant.

Captain, USN
Research and Development Division
Bureau of Ordnance

Grampaw Pettibone Says:

I'm delighted to know that work is underway to develop a flare that is easier to operate. In the meantime, let's all make sure that we know how to operate the current type . . . whether you use the flare or the 38 or both, "the life you save *will* be your own".

Trim Tab or Cross Wind?

An Aviation Cadet with slightly over 40 hours of time in the TBM-3E was scheduled for an ASW tactics flight involving four aircraft. On takeoff he was assigned the number three position. A 28-32 knot wind was blowing from the southeast and the takeoff was made on a runway heading 170 degrees, creating a very strong, port, cross wind.

After turn-up the flight taxied onto the runway in order, with the flight instructor taking off first from the right side of the runway. The second aircraft took the left side and during takeoff

swerved and drifted to the right so as to become airborne from the right side of the runway.

The cadet in number three position took the right side of the runway, and noticed the effect of the cross wind on the number two aircraft. Here's his description of his own takeoff:

"I waited from 20 to 30 seconds after the number two plane was well in the air. I then applied throttle to 30", released my brakes and continued to add power up to 49". In a very short time my wheels left the deck and I observed a strong drift to the right. In an attempt to correct for this, I applied left aileron to keep the left wing from coming up. Shortly after becoming airborne, the nose of the aircraft came up abruptly, forcing the stick back in my lap. To get the nose down I added a small amount of forward elevator tab. As the nose came down, I raised the landing gear. When I felt I had reached a safe attitude to regain airspeed, I took the forward elevator tab out and returned it to approximately the neutral position.

"Almost immediately the nose again came up to a very steep attitude, and a stall occurred. The aircraft fell off on the right wing. Seeing that the aircraft had stalled and expecting contact with the ground, I chopped all the power and attempted to get my wings in a level attitude, by applying forward stick to get the nose down and left aileron to get the left wing down. I then struck the ground on the right wing, which then forced the aircraft down on the fuselage. I skidded across runway 8 and into the grass. Upon leaving the plane, I turned off the "Mag" switches and got clear."

The TBM suffered strike damage as a result of this crash, but there was enough left of it to determine all controls operated freely and to their prescribed limits. All stops were intact and functioning correctly. There was no evidence of any control failure during the brief flight. The weight and balance of the plane was checked and found to be well within acceptable limits. Witnesses verify the fact that the Cadet waited long enough prior to takeoff to eliminate slipstream as a possible cause.

Grampaw Pettibone Says:

Well, what caused the accident? Actually there aren't so very many possibilities left. For one thing the cross wind of 30 knots probably caused the cadet to become concerned and then confused. Chances are that he had never attempted a takeoff with a cross wind quite that strong. The other possibility, and the one that the accident board believed to be most likely, was that he took off with full back elevator tab. When questioned on this, the pilot stated that he normally checked his tab settings on the line before starting the engine and that he did not go over this check-off list item immediately prior to takeoff. He also remembers that he was holding forward pressure during his takeoff roll and that he became airborne by releasing the forward pressure. He recovered from his initial, extreme, nose-high attitude only by use of some forward tab and stalled out of a steep climb when he added back-tab after picking up his wheels.

Except for proper use of shoulder harness and safety belt, I think he might well have qualified for this epitaph:

Here lie the bones of NAVCAD "Lew"
Moistened by the rain and dew.
Because he didn't check his tab
He's underneath this marble slab.

How Hot Can You Get?

About once every six months someone asks "Is military flying still as hazardous as it used to be?" When this occurs, we bring our statistics right up-to-date, count the casualties, and turn over the grim figures to the folks who are explaining why "flight pay" is still needed.

The last time this happened I had a talk with an Air Force Colonel who was compiling similar statistics relative to their accident rates. We didn't have any difficulty convincing ourselves that military flying is still a very dangerous occupation, but in the course of the conversation I picked up an accident tale which the Colonel swears is true. Later on he mailed me a picture to back up the story:

It seems that during a test flight on a C-47 (R4D to the Navy), an Air Force pilot with 6,600 flight hours discovered that he was only able to lower one gear. The tower was informed of the trouble and hurried consultations were made with maintenance and operations personnel. The pilot was advised to fly locally until he had burned up most of his gas and then to come in with both wheels up and to cut all switches before landing.

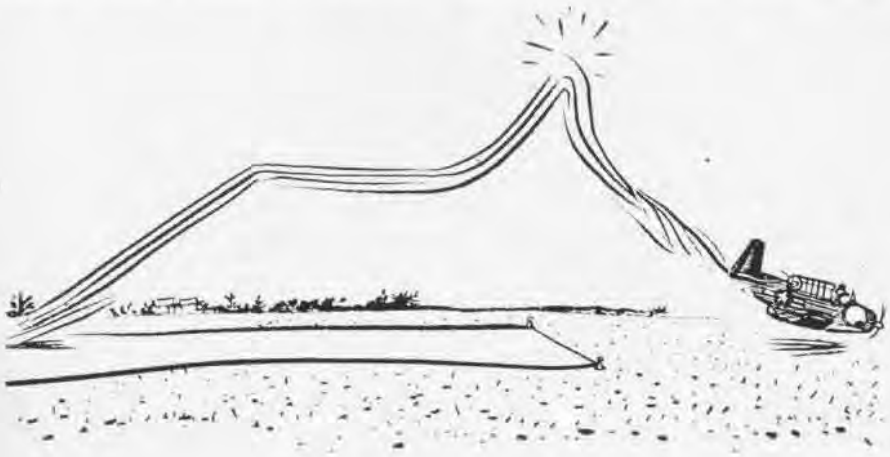
The pilot knew a lot about the particular plane that he was flying and realized that when the C-47 landing gear was fully retracted, the tires extended about six inches below the wheel wells and that the wheels would turn and that full braking action was available even with the wheels retracted.

He decided that there was a good possibility that the plane could be landed wheels-up without any damage.

The one thing that he expected trouble with was the propellers which extended beyond the margin of safety when rotating, or when straight down, and could cause a great deal of damage.

He planned his final approach with altitude to spare. As he came down the groove and saw that he was going to make the field, he feathered both propellers . . . then used the electric starter to position them so that they would not touch the runway. He cut all switches, held off, and made a nice three-point landing. The C-47 rolled down the runway on the retracted gear.

When the crash crews pulled alongside the plane, they found that there had really been no crash at all—just a dead stick, wheels-up landing with nary a scratch on the "goony-bird". The plane was lifted with jacks, and the pins were put in the landing gear and it was taxied to the hangar. Mighty sharp, eh?



MODIFIED D-558 MODEL TESTED BY NACA PROVED WATER SKIS WERE FEASIBLE FOR HIGH SPEED. MODEL HERE IS JUST LANDING ON ITS SKIS

SEAPLANE HYDRO-SKIS SPEED TAKEOFF

SEAPLANES may soon be tucking away their hydro-ski landing gear into sleek streamlined fuselages just as landplanes do their wheels. That deep-hull seaplane silhouette may be about ready to give way to the new ski-plane look.

In the air, ski-planes of the future won't look much different from landplanes, but during landing, the ski-plane will extend its hydro-ski gear, touch down smoothly on the water, and taxi on the skis to a ramp at the water's edge. Then rolling on small beaching wheels in the skis, the ski-plane will roll up the ramp without ground assistance and taxi to its parking space.

For the present, this is the way ski-plane operation is visualized and because of the many possible advantages over conventional seaplane designs, BUAER has placed sharp emphasis on the development of the ski-plane principle.

Although Canadian bush pilots have occasionally operated snow ski airplanes from the water as a matter of necessity, it was the National Advisory Committee for Aeronautics that initiated investigations of the use of hydro-ski gear on current high-speed seaplane designs.

The early NACA investigations consisted of dynamic model tests centered around applying hydro-skis to a modified version of the Douglas D-558 research airplane. The idea was not to develop a hydro-ski gear for the D-558, but rather to test the feasibility of the hydro-ski idea for high-speed airplane.

Dynamic model techniques had been developed over a period of years in connection with conventional seaplane developments, which now allowed an evaluation of the radical hydro-ski configuration. The dynamic model tests of the modified D-558 gave surprising and encouraging results. In the first place, landings in rough water at high speeds were relatively smooth and unusually stable. The model could be landed over a wide range of attitudes, nose high, nose low, yawed, and rolled, without upsetting.

Model resistance tests were then conducted, and it was estimated that the full-scale airplane would have sufficient thrust available for takeoff. Additional tests were run to answer other questions regarding the feasibility of using the hydro-ski gear and it was finally decided that it could be used for practical high-speed seaplane designs.

NOT ONLY did the hydrodynamic test results appear encouraging, but a most important additional aspect was that the hydro-skis were small enough to be retracted. The resulting form was aerodynamically clean and it became apparent that the high air drag and penalties of conventional seaplane design, could be eliminated.

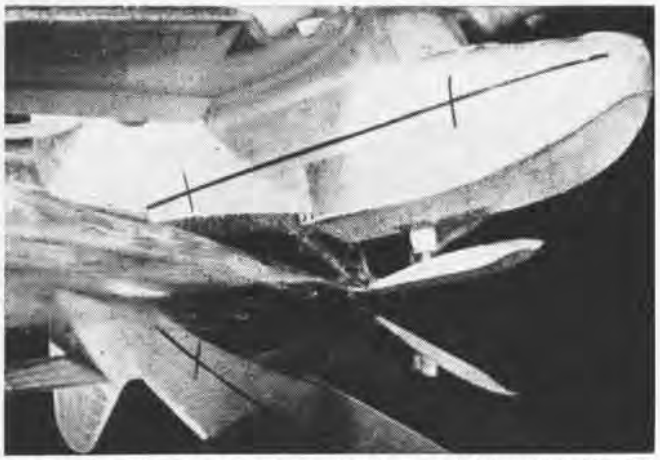
The first test application of the hydro-ski idea to a full-scale airplane was done by Edo Corporation by installing a single main hydro-ski on a fixed strut under a JRF-5 airplane. This pioneering effort was done under an Air Force project and was intended primarily to furnish a test article for multi-base operations. Edo found the gear could operate from ice, snow, and water.

Sufficient hydrodynamic tests of the airplane were made to show that water operation was a practical matter, but the extensive snow and ice tests left the airplane in too poor a mechanical condition to obtain additional hydrodynamic data. Edo Corporation therefore modified a second JRF-5 airplane to incorporate a similar but improved hydro-ski gear, this time under BUAER sponsorship. This hydro-ski test bed airplane is presently undergoing extensive hydrodynamic tests at the NATC PATUXENT.

At rest in the water the airplane looks like a conventional JRF-5. Once under way, however, the airplane rises and at about 20 knots the attitude increases sharply and the nose of the hydro-ski breaks through the water surface with a short burst of fine spray. Thereafter, the airplane rides on the hydro-ski and rapidly accelerates to takeoff.

During landing the hydro-ski first touches the water, and in rough water, presents only a small area for impact against oncoming waves. As the airplane decelerates the hydro-ski assumes more and more load until finally, when the load becomes great enough, it submerges, allowing the airplane to float in the water. The settling is a gentle and not unpleasant maneuver.

Subsequent to tests of the first JRF-5 modification, All American Airways ini-



NACA MODEL AMPHIBIAN TESTS HYDRO-SKI FOR WATER, SNOW AND ICE

SNJ WITH PLANING SURFACE GEAR WITH WHEELS TAKES OFF ON BEACH

tiated flight tests of hydro-ski equipped aircraft under BUAER contract, along a somewhat different line. Installing planing surfaces on the normal landing gear of a *Cub* airplane, All American Airways found that landings could readily be made on the water and that water taxiing could be accomplished at relatively low speed provided that the speed was not reduced below the water-stalling speed of the planing surfaces.

WHEELS were then introduced which projected slightly below the planing surface and it was shown that unassisted operations could be made from grass runways, and also that the airplane could be landed in the water and, maintaining water-planing speed, taxied on to a sandy beach.

In addition, the airplane could be taxied back into the water for takeoff provided a certain minimum speed was reached before it entered the water. This minimum speed is easily attained. Under BUAER sponsorship, various arrangements of this planing surface gear with wheels have been tested, including installations on an SNJ.

With only minor preparations, unassisted operations from a beach or a ramp is a practical matter for those airplanes tested. Alighting and take-off from the beach or ramps becomes a fast and simple maneuver, eliminating the need for beaching gear, beaching cradles, mooring buoys, and other associated equipment.

This type of operation eliminates the low-speed and hydro-ski surfacing problems inherent in the designs first tested, and introduces the additional problem of dunking the airplane in the event of engine failure or inadvertent water stalling. The danger of inadvertent water stalling has been greatly reduced by practicing stalls in shallow water.

It appeared desirable to obtain further information on hydro-ski configurations different from those previously tested. BUAER accordingly requested NACA to conduct a seaplane tank investigation of a model incorporating a twin hydro-ski configuration for comparison to the single hydro-ski gear previously mentioned. The twin hydro-ski gear may have considerably different hydrodynamic stability characteristics from the single ski configuration.

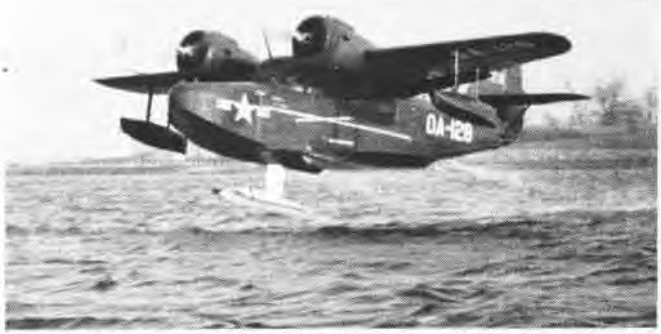
In the meantime evaluations have been focused on applying the available information to more advanced designs. A study was made of installing hydro-skis on the Convair *Skate* high-speed seaplane design.

This design, of a more conventional trend, was considered to be a practical seaplane design and was originally developed for use without hydro-skis. An optimum ski-plane obviously could not result, but nevertheless the study permitted an evaluation of the effects of installing hydro-skis on a current high-speed seaplane design.

Dynamic model tests with and without hydro-skis were conducted at the Convair hydrodynamic facility and also at the NACA seaplane towing tank. The results showed, in part, marked improvement in rough-water takeoff and landing characteristics and that a practical ski installation could be made.

BECAUSE of the encouraging results obtained thus far BUAER has undertaken the construction of a high speed airplane embodying many of the favorable features mentioned above. At this writing, details of the new design cannot be given but it seems safe to look to the future for water-based aircraft with excellent aerodynamic performance, improved water takeoff and landing characteristics and simplified of beaching and ground handling.

SAME JRF-5 PLANE SHOWN WITH SKIS MODIFIED FOR SNOW, ICE WORK



JRF-5 HYDRO-SKI TEST PLANE HAD FIXED INSTALLATION BELOW HULL

PROP PLANE BAGS A MIG-15

ARTIST'S MONTAGE OF HOW A CORSAIR MIGHT SHOOT DOWN A MIG, AS VMA-312'S FOLMAR DID

THE NAVY'S score of Communist planes shot down or destroyed on the ground in Korea, which had reached 88 by May 1, went up another notch on 10 September when a VMA-312 *Corsair* pilot from the CVE *Sicily* shot down a MIG-15.

Communist jets have shown more tendency to come southward where Marined propellered fighters are operating and on the same day four MIG's jumped three *Corsairs* from VMA-323. The score at the end of that dogfight was 0-0.

Credit for shooting down the first MIG jet of the war with a *Corsair* went to Capt. Jesse G. Folmar of the *Sicily*, in his second MIG fight. Folmar and Lt. W. L. Daniels were jumped by four MIG's over North Korea.

"They attacked in pairs," Folmar said. "The second section had just passed and was in a climbing left turn. I turned inside them and gave the nearest one a five-second burst of 20 mm. The MIG belched black smoke and the pilot flew into the air from his ejection seat. His chute opened, but it was already on fire."

Moments later one of the MIG's shot down Folmar's *Corsair* and he was forced to bail out over water, where an Air Force *Albatross* picked him up in 15 minutes. Folmar's MIG was not the first jet of the Korean war bagged by a propellered plane. A Royal Navy *Sea Fury* got one on Aug. 9 and the Air Force claims some shot down by F-51's.

Three *Corsairs* from VMA-323 were jumped by eight MIGS near Sokto island on the west coast. Pilots were Capt. John T. Moore, Maj. Richard E. Pryor and LCol. Kenneth R. Chamberlain.

MARINE MIG-BAGGER GETS RIDE FROM BARBER

"How the MIG's ever missed us on the first run I'll never know," Moore said. "They had perfect tail shots but they sailed right past into our sights."

Every time the MIG's made a pass, the Marine fought them down to 1,000 feet in tight, twisting and turning maneuvers. "They were evidently green pilots and lousy shots," Pryor reported. "They would start a run but would turn and climb for altitude every time they saw flashes from our guns." The MIG's made 10 passes at about 400 mph before they broke off and flew north.

Up to May 1, Navy-Marine planes had destroyed 74 Communist planes on the ground and shot down 14, three of them MIG's. Not counted in this total were five MIG's bagged by Navy or Marines on exchange pilot duty with the Air Force and flying F-86 *Sabres*.

First MIG shot down by the Navy was on 9 November 1950, by LCdr. W. T. Amen, skipper of VF-111 on the *Philippine Sea*. LCdr. W. E. Lamb, CO of VF-32 and his wingman, Lt. R. E. Parker, got #2 on 18 November while operating off the *Valley Forge*. The third MIG was downed by Ens. F. C. Weber of VF-31 off the *Leyte* on the same day. All three flew F9F *Panthers*.

LCdr. Paul E. Pugh, flying with the Air Force, shot down two MIG's. Capt. V. J. Marzello, USMC, got one on 5 March 1952 and Capt. William F. Guss on 5 November 1951. The third Marine with the USAF to get his jet was Lt. Walter M. Schirra.

First man credited with shooting down a MIG with a propellered fighter plane was LCol. Kendall E. Carlson, USAF, with an F-51 in November, 1951. The Air Force claims more than a score of MIG's have been shot down by gunners on B-29's.

By downing the MIG, Capt. Folmar won himself a ride in a Korean "A" frame from James Barber, Chance Vought Aircraft representative. Barber had promised such a ride to the first *Corsair* pilot to down one of the Communist jet fighters. The accompanying photo shows Folmar collecting the ride, which Barber looks happy to give.

● VR-21—Midway island may be small, but not too small to permit someone to steal the public works officer's bicycle and get away with it.

ONE OF THE *oddest delta-wing research jet planes flying around Europe today is this SAAB-210 "Draken", powered by a 1,050-lb. thrust Armstrong Siddeley Adder axial flow jet. It has a tail chute to use for slowing down on landings and has "elevons" to replace conventional ailerons and elevator. Jets in the background of the lower picture are SAAB-29's with deHavilland Ghost engines.*

CVL LANGLEY IS NOW FRENCH LAFAYETTE

LAFAYETTE IS SHOWN UPON ARRIVAL IN FRANCE 11 SEPTEMBER 1951

SEPTEMBER 1952 marked a special anniversary for a former carrier of the U. S. Fleet, the *Langley*. A year ago, CVL-27, newly named the *LaFayette*, arrived in France as part of that country's fleet.

She became France's third carrier. Her predecessors also were foreign imports: the *Arromanches*, formerly the British CVL *Colossus*, newly named by the French in commemoration of the D-Day landings; and the *Dixmude*, an American jeep carrier which had originally been designed for a merchant ship. The *Dixmude* now is used for aircraft transport, leaving the *LaFayette* and the *Arromanches* as the active operational carriers.

As a combat carrier of World War II, the *Langley* had a distinguished career. She had been named for Samuel Pierpont Langley, the third secretary of the Smithsonian Institution, honored for his great contribution to the early development of aviation. The *Langley*, an Independence-class carrier, went into combat in 1943. She was the second carrier to bear that name, the first being a converted collier, that was lost off Java February 27, 1942.

After 18 months of service which brought her to the very doors of the Japanese Empire, she was hit by a bomb which penetrated the forward part of her flight deck and killed three members of her crew. In the summer of 1945, the *Langley* returned to San Francisco for repair. By the time she got back to the forward area, hostilities had ceased and she had a new mission to perform.

The *Langley* immediately turned troop carrier and brought back Navy men from the Pacific Islands and from Europe. She was inactive from the spring of 1946 to the early part of 1951 when she was reactivated for transfer to France under the Mutual Defense Assistance Program to build up her navy.

She became the *LaFayette* on 2 June 1951 and began her career with a training cruise in the United States. She arrived in France in September under the command of Capt. Ruyssen, since promoted to rear admiral.

During this cruise, the air group flew 2,040 hours in F6F-5's, F6F-5N's and TBM-3E's. There were 1,160 landings made, 32 at night and 139 catapult takeoffs.

SINCE SEPTEMBER 1951, the *LaFayette* has participated in all the French naval exercises and in all the naval exercises of the combined Allied forces. She took part in exercise *Grand Slam* with the U. S. Sixth Fleet, the British Home Fleet and the Italian and French Fleets.

The air group is composed of 16 F6F's, 4 F6F-5N's and 12 TBM-3E's, with a ready reserve of four, two and four. There are 35 pilots.

Some of the young pilots who will later reinforce the group will be trained in this country, some in France. They will follow a program of instruction very similar to that given in the U. S. Navy.

Eventually the air group will be equipped with *Corsairs* and AD's or TBM's.

Trainings in night landings will begin and continue with the arrival of USN experts to train LSO's in night work.

The *LaFayette* is now under the command of Capt. Barthelmy.

A HELLCAT PATROL FLIES IN FORMATION OVER THE CARRIER'S ISLAND

"ROGER, COMME CA!" THE LSO BRINGS PLANE IN TO SAFE LANDING

SEASCAPE IN THE FAR NORTH IS VARIED AS ICE BREAKER'S HELICOPTER SCOUTS PAST TOWERING ICEBERG SEEKING ROUTE FOR MSTS SHIPS

NAVY PLANES AID IN GREENLAND BASE JOB

BATTLING extreme cold, high winds and difficult navigation, Naval Aviation played a strong role in helping build the big U. S. bomber base at Thule, Greenland, only 900 miles from the North Pole.

Three squadrons were active in the picture. They were:

VR-6—For 18 months, transport planes of VR-6 helped carry everything from dynamite to Dixie cups to the Far North, plus thousands of civilian and military workers.

HU-2—Helicopters from this Lakehurst squadron flew off the fantails of the ice breakers *Edisto* and *Atka* to scout for breaks in the sea ice so MSTS ships could bring in more men and supplies. The survey ship *Tanner* used its helicopter to aid in charting the poorly-mapped Greenland waters for the ships.

VP-23—Flying their P4Y-2's which a few weeks before had been scouting hurricanes off sunny Florida, VP-23 moved in to do long range ice reconnaissance.

This was Naval Aviation's virtually-unsung part in the huge project, just revealed to the public.

Thule is located on Greenland's northwest coast, only 1,300 miles across the North Pole from Russian soil. It has a 10,000-foot runway, a great help in a land where weather is usually overcast, still and foggy, where temperatures get up to 40 in the summer and to minus 70 in the winter.

When the ice froze up the sea lanes in October, only the air lift kept the huge base and its 400 men operating until the thaw comes next summer, nine months later.

Flying out of Westover AFB, via Newfoundland, Goose Bay, Labrador and Bluie West 8 on Greenland's lower west coast, VR-6 and other MATS squadrons helped transport many things. There were civilian and Army construction workers, food, prefabricated huts, tools, electric generators, power shovels, tank trucks to carry water, a big crane and road graders. One shovel weighed 29,000 pounds, the heaviest piece of equipment ever to be airlifted.

In early days of the flights, all planes had to be individually radar-equipped for flights over the icy, desolate regions to Thule, which squats along Baffin Bay, close to Greenland's 10,000-foot mountainous interior.

By August of this year, VR-6 had carried a big share of the 25 million pounds of freight and 19,040 passengers airlifted into Thule over the dangerous 2800-mile flight from Westover to Thule. As soon as the ice opened up, MSTS freighters brought in as much as 200,000 tons of cargo during the peak month last summer.

U. S. Army engineers in charge of construction of the base estimate that the early arrival of men and materials via transport planes and their continuing air support advanced completion date of the bomber base by at least a year.

The two helicopter-equipped ice breakers, *Edisto* and *Atka*, carried HTL and HO3S pinwheels to do ice recco and make utility flights for the survey parties' scientific personnel. They went in ahead of the main ship movement to clear the ice from North Star Bay. The survey ship *Tanner*, which recently completed an underwater coaxial cable survey for the guided missile range from Florida to Puerto Rico (NANews, May 1952), used an HTL and HO3S for mapping.

VP-23, the hurricane hunters, based at Brunswick, Me., after they left the Florida duty, flew long distance scouting flights over Labrador Straits, Davis Straits and Baffin Bay, keeping four planes operational from their advanced Argentia base. They made stops at Goose Bay, Crystal #2 on Frobisher Bay, as well as Thule, BW-1, Baffin Island, Resolute Bay, and Cornwallis Island.

Logistics support for their operations came via MSTS and MATS. Fuel was at a premium at Crystal #2, Bluie West 8 and Thule until the surface ships could arrive in July. Until then, fuel had to be loaded into the aircraft tanks from drums by hand. During the "shortage periods," planes had to fly from Goose

Bay, Labrador to Thule and return without refueling. At Bluie West 8, a mysterious cache of gas in drums, probably a World War II relic, was found and poured into the plane by buckers.

COMMANDING officers of VP-23's detachment at Thule were rotated every three weeks among senior pilots of the squadron. While in the area, LCdr. Edward P. Stafford, operations officer, visited the statue of Admiral Peary, erected 90 miles south of Thule. Stafford is Peary's grandson and at the age of 14 helped his mother build the statue near the site of a Peary base.

One of VP-23's *Privateers* piloted by Lt. (jg) J. M. Barron flew RAdm. L. J. Huffman, commander of Task Force 118, over the North Pole, to join the ranks of other Navy admirals who have viewed that desolate flatland at the earth's top—Peary, Byrd and Cruzen.

Co-pilot was Lt. (jg) F. J. Bellar, Lt. J. B. Craven and Lt. (jg) S. R. Odrobina navigators on the hop. VP-24 took over from VP-23 in September.

Arctic advisor to Task Force 118, coordinating the aviation activities with the fleet was Lt. C. O. Fiske, a former PBM pilot of World War II, who was recalled to active duty while working as a civilian weather observer at Resolute island, west of Thule, probably the northernmost "call back" ever made by BUPERS. Fiske was senior U. S. weatherman at the station and was picked as advisor to TF-118 because of his experience flying at the Antarctic and Arctic alike. He was with the Finn Ronne expedition at the South Pole.

Other naval aviators connected with *Operation Bluejay* included LCdr. G. J. Vanderford, staff advisor for the amphibious group in the expedition, and Lt. (jg) Thomas E. Cox, transport pilot and meteorologist with the force.

Since April, 1951, VR-6 planes have flown 443 hops to Thule, carrying 3,544,000 pounds of passengers and cargo. Pilots logged 12,854 hours on the "north run", the 30-hour route from Westover to Thule. At the end of the work season, planes flew out 7,000 construction workers.

In February 1952, a VR-6 maintenance crew headed by its engineering officer, LCdr. Chester E. Perkins, was flown to Frobisher bay to repair Air Force and Navy planes disabled there. The crew fixed the planes, working outside in temperatures 47° below zero. All aircraft were then flown out of Frobisher and soon were back "on the line."

All men take the Arctic survival course before taking off on the hop north. Planes carry complete survival gear in case they are forced down.

All planes were completely winterized before starting missions. As many VR-6 flight mechanics can testify, —50° temperatures take all the glamor out of their jobs. Oil for the aircraft congeals and has to be heated by steam hose until it becomes fluid enough to pour. The containers are then thrown into jeeps and rushed to the waiting aircraft before it can congeal again.

Plane tires have steel imbedded in the treads for operation on snow. Brakes are checked for operation in temperatures as low as 67° below. Oxygen systems are checked for operation altitude flights, landing light assemblies and landing gear shock struts modified.

Regardless of the original precautions taken, maintenance and supply continually were a problem. Frozen brakes, gas leaks, spark plugs, dead batteries were serious enough to keep planes on the ground. Because of cold, refueling had to be speeded up. Engines on one wing were kept running while those on the other side were gassed. Crews and passengers ate lunches in their seats and flight clearances completed at the plane.

Navigation in the far north presented another difficulty, due to nearness of the magnetic North Pole. Variations at Thule were up to 75°. Weather was unreliable and fog frequent. Landings were made more "interesting" by a 1200-foot radio tower on the base, almost in line with the approach runway.

Celestial navigation was difficult because of weather conditions, so a system of grid navigation was worked out—a form of aerial plotting now being generally adopted for Arctic operations.

One of the major obstacles to the movement of shipping as far north as Thule was the inadequacy of navigational information in Arctic waters.

To obtain the necessary hydrographic and oceanographic data to facilitate *Operation Bluejay*, Hydrographic Survey Group II was dispatched to North Star Bay in June 1951 with the first element of the Task Force to conduct surveys, erect navigational beacons, and prepare charts to assist elements of the Task Force arriving at later dates.

DESPITE adverse weather conditions, the HO3S helicopter, carried aboard the *Tanner*, flagship HS group, proved to be extremely valuable in ice reconnaissance, transportation of survey personnel and equipment from ship to shore and in obtaining supplemental aerial photography. Use of the helicopter made possible survey operations which would have been impossible to perform using landing boats and older methods.

Information obtained during the first season's effort was not only evaluated and distributed on the spot, but also provided material for the Hydrographic Office in production of new charts and other aids for the second season's effort.

HEAVILY LOADED VR-6 TRANSPORT LANDS ON THULE'S FROZEN AIRSTRIP

CLUTCHING REPLICA OF NORTH POLE, ADM. HUFFMAN WITH TWO OFFICERS

THE WAR

TWO AD *control planes and F6F drone set for catapulting on Boxer; drone carried bomb and was guided to North Korean target via television; AD on right flew F6F until "mother plane" was on station*

Drones in Korea

First use of F6F *Hellcat* drone planes to pack 2,000-pound bombs against North Korean targets, using television to give the mother plane a picture of how it was heading, was reported by the carrier *Boxer*, now back in the U. S. on rotation.

The drone was catapulted from the starboard side (*see photo above*) after an AD went off the port catapult. A second AD on deck controlled the F6F until the airborne *Skyraider* could take over and guide it to the inland target, a railroad tunnel mouth.

The press and radio made considerable of the feat, although F6F drones have been in use for years as antiaircraft targets and airborne television was demonstrated over Washington, D. C., right after World War II. Its combat applications were described in NAVAL AVIATION NEWS 18 months ago.

During the war against Japan, TDR drones flew off South Pacific bases against enemy shipping, carrying one-ton bombs.

Busy Bee

Candidate for biggest letter-writer in the Pacific fleet it Pat Kelley, Jr., personnelman, seaman, who recently sent his wife a letter 40 feet long.

It wasn't hand-written either—it was typewritten, single spaced! The letter brought his wife in Garden Grove, Calif., up to date on his activities with VP-731 in Japan.

Kelley estimated the letter involved 140,000 strokes on his typewriter. If written long hand, the letter would have been 180 feet in length. The pleasant task took a month to complete, all on off-duty time.

16" Guns on Plane

Take a look at the picture below showing 16" guns installed on the wings of an AD *Skyraider*. Well, almost . . .

The picture actually shows the *Skyraider* on the deck of the battleship *Iowa* off Korea. The bomber had been forced to land on a tiny UN-held island after suffering damage during a combat mission from Task Force 77.

The *Iowa* hoisted the plane aboard and secured it to the main deck aft. From there the plane was safely transported to an aircraft repair center in Japan.

Too Young to Fight

"Too young for combat" was the ver-

PAT KELLEY *puts finishing touches on 40' letter to wife; David Rodger rolls it up*

16" GUNS *on Iowa form backdrop for Skyraider picked up by battleship off Korea*

VMO-6'S *Corp. Staffieri, 17, gets sent to rear; too young to fight with the Marines*

BEFORE—*This enemy iron mine near Sangyou-dong, a few miles from Russian border, was photographed by a pilot from Essex*

AFTER—*One minute and 25 seconds later, the same pilot snapped this picture, showing what 1000-pound bombs did to the place*

dict passed by Marine authorities on 17-year-old Cpl. John P. Staffieri, serving with the First Marine Aircraft Wing in Korea.

Over the youthful Marine's heated protests, he was transferred out of the Korean combat zone to Japan. Marine Corps rules say nobody under 18 gets in combat. Staffieri joined the Navy when he was 14 by concealing his age, was discharged after he finished boot camp and went on a cruise in the Caribbean, and then poined the Leathernecks. By the time his true age was discovered, he was over the minimum age limit of 17.

Foreign Language

Over in the 1st Marine Aircraft Wing's public information office, Sgt. James F. Hennelly was talking about being rotated to the states and returning to civilian life.

"Jane" a 21-year-old Korean girl typist who worked in the office, asked with genuine concern:

"But do you speak civilian?"

Debaters Deluxe

When the labor officer at a Marine ground control intercept squadron asked a Korean why he wanted to work for the Marines, the officer got an answer—but hardly the one he expected.

The applicant, Kwang Yoon Kim, 26, a former Seoul University student, said that he had studied political science and expected to take up a career in politics.

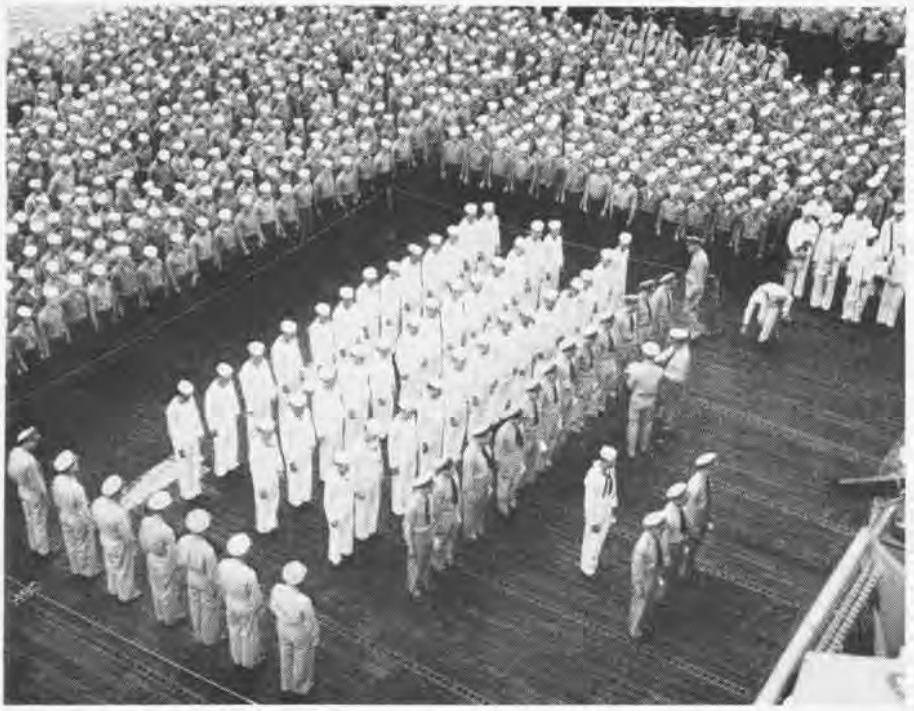
But first he needed some training in elocution and came to the Marines since he heard they "were the fastest and most convincing talkers in the world".

P.S. He got the job.

Back in Line

After five months absence, the *Essex* returned to Task Force 77 off Korea. Commemorating the occasion, she sent the *Bon Homme Richard*, flagship, the following poem:

With crew so fresh with conditioned air
And island cut to cause a stare,
Paint so new, boy does it shine,
We have arrived, the *Mighty Nine*,
Day by day, we'll do our best
To keep up? Oh no, to beat the rest.
From dawn to dusk, we'll fly our planes
Then dusk to dawn they'll fear our names.
As time goes by and we grow old,
Slow we'll get as with the cold.
To the east we'll turn and softly whine
Where's the relief for the *Mighty Nine*?
Until we hit the southern shore.
For now we'll fit like ham and gravy
"The fightingest ship in the American Navy."



THESE 51 *men on the Boxer's flight deck got letters of commendation or medals; three pilots, front, got Purple Hearts, AD1 Harold E. Well, behind them, a commendation ribbon*

Marines Goosed

Radar operators at a Marine ground control interceptor unit in Korea spotted a tight formation of "enemy planes" coming down at the forward air base. They ordered an alert and sent Capt. Norman W. Flinn of the *Flying Nightmares* squadron to intercept the "bogie".

Capt. Joseph E. Heaton, who ordered the alert which sent men scurrying for foxholes, noted the slow speed of the oncoming planes. Remembering a trick used by Jap pilots in the last war, he felt it was better to be safe than sorry.

The mystery was solved when a tight formation of geese flew over the airbase. The episode strengthened the Marines' faith in the sensitivity of their search radar if it could pick up anything as small as a flight of birds.

Heaton reported the Japs used a trick of flying which gave the radar operator the impression the plane was traveling about 75 mph when actually he was flying much faster than that.

VADM. SOHN, *Chief of Naval Operations of ROK Navy (third) and Capt. Min, chief of staff, with Boxer's captain, G. K. Fraser*

THIS DELUXE *building being completed by Chinese laborers will house truce teams if they meet to debate at Pan Mun Jom*

Third Timers

Seven pilots aboard the *Essex* in the Korean war zone are putting in their third combat tour in the Far East, putting them one up on the *Big E*, now fighting her second tour.

The men are Cdr. Lewis Winston Chick, Lt. Francis L. Brown, Lt (jg) Gerald W. Wise, Lt. (jg) James R. Parce, Lt. (jg) John Harris, Ens. Joseph A. Adams, and Lt. (jg) Paul E. Marsh.

Chick, Brown and Marsh served together in CAG-11 on the *Philippine Sea* and Wise and Parce were with VF-22 on the *Boxer* on previous combat tours. Six of the seven flew in Korean combat again from the *Princeton*. Cdr. Chick is commanding officer of VA-55.

In the accompanying photo they are, left to right: Harris, Parce, Wise, Chick, Brown, Marsh and Adams.

THESE 7 *Essex pilots are serving their 3d tours of combat duty with carrier in Korea*

Bag Tanks

Communist tanks are getting so scarce in Korea these days, it becomes news when the Marines knock out one. Four pilots from the *Deathrattlers* squadron flew through heavy clouds to knock out two tanks sighted near Kumsong.

Capt. Dean Lindley, who led the attack said, "Our napalm tanks and bombs hit in the right spot. We splashed liquid fire all over the target. The whole area was blasted and burnt out".

After one run the controller radioed "both targets destroyed". Other pilots in the flight were Majs. Robert T. Bell and Richard Rainforth and Capt. John T. Moore.

Four Pairs of Hands

It took four pilots of the *Princeton* teaming together to get a crippled *Skyraider* back aboard after it had been shot up over North Korean power plants.

The pilot, Lt. (jg) R. A. Foucht of VA-195, brought his flaming plane safely back to a landing at a South Korean fighter strip. The following day Lt. (jg) Richard W. Kincade was flown to the strip to ferry the plane back to the *Princeton*. Lt. (jg) Charles R. Holman landed his plane there too for repairs after receiving AA damage.

Holman and Kincade set out for the *Princeton* after the two planes were fixed up. On approaching the force, the *Skyraider* began losing power, and he radioed for an emergency landing. As the task force headed into the wind, his engine quit completely.

The LSO of CAG-19, Lt. Andrew J. McClure, Jr., began giving him landing instructions. Holman noticed the crippled plane did not have its hook down and radioed Kincade. The latter lowered the hook, took the cut and landed safely with no power.

NAVY'S *bomber's struck 'pay dirt' when they bombed this iron ore mine at Musan, Korea*

'Old Hutch' Makes It

After two years of fighting the Korean war behind a desk, Cdr. D. W. Cooper, skipper of VF-721, finally got his wish to throw lead at the Reds in person.

Called "Old Hutch" by his naval academy classmates, he was ordered to the *Philippine Sea* as air intelligence officer when the Reds crossed the 38th parallel back in 1950. Hutch moved to Seoul as Navy representative at the Joint Operations Center. His tour up at JOC, Hutch stayed on in Korea as intelligence officer for Task Force 77. He was too good an intelligence officer, the admiral said, to be allowed to go back to flying.

For almost a year and a half he fought the Reds with his mind alone. Finally he got his way and with it a squadron of shiny new *Panther* jets. He went out on a morning hop to smash Red gunners at Hangsung. Back aboard at 1130, the 33-year-old Kentuckian, who owns five German shepherd dogs back in Coronado, Cal., did not even have time to get out of his flight suit.

He was briefed, caught chow on the run, briefed again and back in the cockpit for an afternoon armed reconnaissance mission. Hurried and somewhat out of breath, Old Hutch is certain of one thing—for him, this is no longer just a mental war with the Commies.

Bemedaled Marine

Before he hopped a plane for the United States, Col. Robert E. Galer, commanding officer of busy Marine Air Group 12 in Korea, was awarded a Legion of Merit medal to add to his Congressional Medal of Honor and numerous lesser awards of World War II.

Presented to him aboard a hospital ship off the Korean Coast, Col. Galer was cited for his outstanding service leading the fighting Leathernecks in combat. The award was made by MGen. Clayton C. Jerome, commanding general of the First Marine Aircraft Wing.

Col. Galer was in the ship recuperating from injuries received when he bailed out from his blazing *Corsair* over North Korean territory and was rescued by a helicopter after a rugged fight with Korean snipers. (NANEWS, *October, pg. 10.*) He sustained cracked ribs and injured a shoulder and arm when he hit the stabilizer as he bailed out.

Disbeliever

During an air strike on a Chinese-held hill in Korea, two Marines were standing in their fighting hole watching the operation. As the six Douglas *Skyraiders* made their pass over the hill dropping napalm and bombs, one Pfc. said, "Look at that . . . nothing could live through that strike!"

But as the final plane made its last run over the target, a Chinese rifleman raised up from his hole and fired at the passing plane with a burp gun.

Said the other Marine, "There's always the 10% that doesn't get the word!"

Rear End Charlies

Marine F7F night fighter pilots have their back seat drivers, but they like 'em.

The pilots have "awarded" the enlisted radar specialists who ride behind them to give navigation instructions a shoulder patch, unofficial, of course.

In the blue and gold are master sergeant's stripes with the radar operator's name embroidered beneath it. At the top of the patch are the words: "Back Seat Drivers."

Gunnysack Gyrenes

A few miles behind the front lines in Korea the comforts of home are lacking, but not ingenuity. Leathernecks of HMR-161 devised a new method for keeping their beer and "cokes" chilled during the hot Korean summer.

The Marines built cooling boxes in every tent by digging a small hole in the tent deck and lining it with burlap. The beverages are cooled by wetting it with water, which evaporates.

MGEN. *Jerome, 1st MAW, presents Legion of Merit medal to Col. Galer for Korean feat*

On Our Side

Some people appreciate what the United States is trying to do for South Korea. A Korean fishing boat captain rescued a downed Marine jet fighter pilot off Pohang. Badly injured, the pilot could not get rid of his heavy flying suit and would have drowned.

The following day, 2nd Lt. Wallace W. Smith, a pilot in the jet squadron, visited the Korean to see what he would like in the way of a gift for saving the pilot's life.

Politely refusing, the fisherman remarked: "I do not want anything; the United States is helping the South Koreans fight the Communists. I consider it my duty as a South Korean . . . without reward."

Walkie Talkies

When Marine Capt. Wallace E. Johnson left his 1st Marine Aircraft Wing job for a week in Japan, he asked the Korean Marines with whom he was serving what they wanted him to bring back.

The answer was 70 Korean-English dictionaries!

The South Korean Marines, trained by their U.S. counterparts, are that eager to learn English, the captain reports. Johnson was a forward air controller, attached to the Korean troops.

CARRIER *Bataan's 'disc jockeys' led by J. V. Sanders, YN1, entertain ship's men*

Attracts AA

The "flying sieve" of the Marine *Deathrattler* squadron has limped home again, this time carrying 44 holes picked up by a pilot on his 44th mission.

Maj. Richard E. Pryor was piloting the *Corsair* on his 44th combat hop when he was hit by .37 mm cannon, damaging the right flap and splattering fragments in his right knee and hand. After he was given medical treatment at his field, he went out to ask how many holes he had picked up.

Just the week before Maj. Orville R. Swick was flying the same fighter when it was hit by AA on the left side. They stopped counting holes after they reached a hundred.

THIS LOOKS *like Miami Beach's skyline, but it's Communist supplies and gear loaded on barges along a quay wall in North Korea; Navy planes are blasting it with rockets, 20mm's*

ESCAPE CAPSULE IS TESTED

THE SUPERSONIC pilot of tomorrow flying at 50,000 feet is going to need more than an ejection seat and a flying suit to keep him alive when he has to abandon his plane.

The answer may be a self-contained cockpit capsule built on as an integral part of his plane, which can be detached from the aircraft. Bureau of Aeronautics in cooperation with Douglas Aircraft Co., at El Segundo is developing such a capsule. The capsule has been fired from a rocket-propelled sled on a 10,500-foot sonic track at NOTS INYOKERN to test its tumbling and stabilization characteristics.

Plans are being made to take the capsule to high altitudes in an AJ's bomb bay and drop it. How it falls can be studied, as well as severity of impact when it hits the ground.

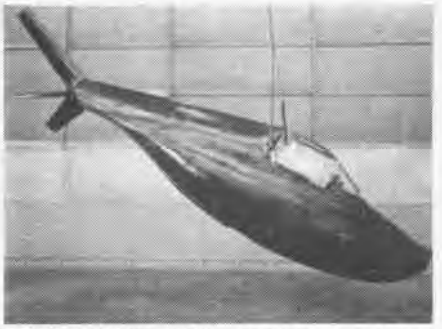
The cockpit capsule is one of a two-prong approach by BUAER at the survival problem in high speed, high altitude planes. Also under development is a smaller "egg-type capsule" which just encloses the pilot and seat and is catapulted from the plane in emergencies. This is for use in multi-place planes, whereas the larger Douglas device is to save the pilot in a one-man plane.

In the latter capsule, the pilot sets off the rocket charge, throwing the whole cockpit section out of the plane. Fins in the after end unfold and stabilize its fall and a small drogue parachute slows it down. Tests indicate the capsule may stream well enough in practice to eliminate the fins. When a safe speed is reached, tension on the drogue pulls out a main chute which lowers the cockpit and pilot to safety.

As the chute unfolds, deceleration from 1100 feet a second to 300 fps occurs in about five seconds. If it lands on water, the capsule rests on its side momentarily as the pilot releases the parachute. A boom holding the mother plane's storage battery is lowered automatically into the water below as a weighted keel to bring the compartment upright.

Survival gear similar to that in a Navy life raft is included in a storage cell. Fresh air is pumped into the compartment through the motion of the waves. It is insulated against cold weather.

In the case of the egg-type capsule in larger planes, only the pilot and his seat will be enclosed in the small unit ejected from the aircraft. The cockpit capsule will contain all the instruments and controls of the plane and will be considerably larger than the "egg."



DEVICE ROCKETS PILOT, COCKPIT TO SAFETY

When the capsule was tested at Inyokern, it was mounted in a test rig simulating the forward part of a fighter plane. Two *Tiny Tim* rocket motors, firing in ripple, were used to power the rig down the long track. Navy and Douglas engineers believe the apparatus may have traveled at faster speeds than land vehicles have attained previously —close to 760 mph.

Pinwheel Angels Have Show

Ellyson Helicopters in Detroit Revue

The Navy now has two teams of *Angels* flying for the edification of the public—the famous *Blue Angels* flying F9F-5's and the new *Rotary Wing Angels* in their HTL-5 helicopters.

First big show put on by the new pinwheel foursome was at the International Aviation Exposition at Detroit over Labor Day week-end, where they showed their repertoire of intricate maneuvers including a hillybilly "dance".

The team is led by Lt. Mark Starr, with Lts. D. T. Rust, W. A. Matthews, and John Mullins, Jr., as members. All are instructors at Helicopter Training Unit One at Ellyson Field.

Two Waves from NAS PENSACOLA accompanied the team to Detroit and participated in their unique show—Louise Shubert, airman photographer, and Lillian McCarty, yeoman seaman.

OUT AT THE *Detroit air exposition, Lt. Al Shepherd flies with his hands for the benefit of Miss Michigan Aviation of 1952, who is Maryanne Carney, and Lt. George C. Watkins. Take a look at the new F7U-3 in back.*

NAS Hutchinson Reopens

Becomes P4Y-2 Training Center Again

NAS HUTCHINSON is in business again. Under the command of Capt. Carl H. Giese, it is planned to have 1800 naval personnel and 350 civilian personnel aboard when peak capacity is reached.

Originally established as a primary training base and later expanded for multi-engine training during WW II, Hutchinson has excellent operational features for P4Y-2 multi-engine training.

Housing and recreational facilities of the base and in nearby Hutchinson, Kans., are excellent.

The government has reclaimed facilities which have recently been used by Mid-Continental Industries, Inc. Advanced Training Unit 12, formerly stationed at NAS CORPUS CHRISTI, is now located at the re-opened station.

November Month of Firsts

Many Navy Records Set During Month

November with its rains and fog is not regarded as one of the better months for flying, but Naval Aviation has three *firsts* which occurred in that month.

- Back on November 14, 1910, Eugene Ely took off from the deck of the Navy's scout cruiser *Birmingham* and flew two miles through fog and rain to Norfolk, Va.
- Two years later, on November 12, the first plane was catapulted from a ship-board-type catapult with Lt. Theodore G. Ellyson, the Navy's #1 aviator, at the controls. The catapult was erected at Washington Navy Yard and the Curtiss hydroplane launched at 35 mph from guywires. A month later a flying boat was launched the same way.
- The third "first" recorded in November came on 28 November 1929 when LCdr. Richard E. Byrd flew over the South Pole from his base at Little America in the Antarctic.

The Navy set a national record on 20 November 1946 when an F8F *Bearcat* climbed to 10,000 feet from a standing start in one minute 34 seconds at Cleveland National Air Races.

While we're on the subject of *firsts*, here are a few more that are credited to Bureau of Aeronautics, all aimed to save pilots' lives.

1916—First safety belt.
1923—Inflatable life raft.
1924—CO_2 fire extinguishers.
1930—Anti-blackout suits.
1931—Electrically-heated flight clothing.
1932—Mechanically-inflatable life vest.
1942—Extra-high-pressure jet tire.
1943—Non-flammable hydraulic fluid.
1946—Light-weight self-sealing fuel tanks.

2 CARRIERS SWAP CREWS

FOR THE first time in Naval history, the entire crews of two aircraft carriers swapped ships at the Navy Supply Depot, Bayonne, N. J.

The USS *Antietam*, recently arrived from the Pacific for reconversion work at Brooklyn Naval Shipyard, moored alongside the USS *Shangri-La*. At an appointed time, the crews of each flattop vacated their living spaces and assembled on their respective hangar decks. Then simultaneously each crew marched with bag and baggage to the other ship.

Since the *Antietam's* dependents were all on the West Coast and the *Shangri-La* was due to go to Bremerton Naval Shipyard, transfer of her crew to the west-bound carrier saved the Navy having to move all the families east and also obviated having to move the *Shangri-La's* dependents westward to Puget Sound.

By noon of "moving day", Sept. 5., officers and men were squared away in their new quarters, with their old executive officers in charge—Cdr. Harry E. Cook, Jr., in the *Shangri-La* and Cdr. E. S. Keets in the *Antietam*.

Assembly was held on each ship, Capt. S. G. Mitchell in the *Shangri-La* made a few remarks to the new crew, read his orders and was followed to the microphone by Capt. B. B. C. Lovett, who assumed command. Thus Capt. Lovett, for the moment was commanding officers of two ships at the same time.

The two captains, with the official party, walked across the dock to the *Antietam* where a similar ceremony was repeated, Capt. Mitchell taking over command from Capt. Lovett.

The entire process was as smooth and slick as a normal work day, but Capt. Mitchell emphasized that a terrific amount of planning and detail had to be done before the move was made. "Just think what the quartermaster's fingers were like after entering 2,500 names in the ship's log!" he said.

"Our biggest problem now," said Capt. Lovett, "will be to straighten out the mail and prevent delays in delivery to the exchanged crews."

The *Shangri-La* will be modernized at Bremerton. She is the third carrier Capt. Lovett has commanded this year and the trip through the Panama Canal was his third transit of the year. Previous to taking over the *Antietam* he had the *Intrepid*.

Italians Receive Helldiver

First SB2C Turned Over to Italy Navy

NAAS CABANISS FIELD—First naval aircraft to be turned over to the Italian Navy under the Mutual Defense Assistance Program was an SB2C dive bomber, presented by Capt. R. R. Briner to Lt. Contini.

Lt. Contini is Italian Naval Aviator #2 and senior representative of his service stationed here. The SB2C *Helldiver* marks the beginning of Italy's small naval air arm. An 18-man contingent of Italians, 13 CPO's and five pilots, has been receiving indoctrination here. Another SB2C is scheduled to be turned over to the Italians later.

Several years ago the U. S. Navy turned over a number of SB2C's to the Greek Air Force to use against guerillas holed up in the northern mountain areas. The *Helldivers* were given great credit for breaking the backbone of rebel resistance at that time.

LSD Rescues Downed SA-16

Landing Ship in Med Hoists Plane Up

The Sixth Fleet in the Mediterranean turned up a new "seaplane tender" in the form of the USS *San Marcos*, a landing ship dock which ordinarily handles small amphibious craft full of troops.

A British *Dakota* plane carrying 32 passengers en route from Libya to Sicily crashed in the Mediterranean and an Air Force SA-16 (Navy JRF-1) was dispatched to pick up survivors. On landing, however, the plane had mechanical trouble and was unable to take off again.

The British frigate *Mermaid* towed the crippled rescue plane back to Benghasi, along with the airliner passengers. VAdm. John H. Cassady, commander of the Sixth Fleet, sent the *San Marcos* from Greece to Libya to assist the plane crew. On arrival it hoisted the 14-ton seaplane aboard, quite a feat for a small LSD and probably the first time in history such a craft had ever served as a "tender." The *San Marcos* was named after the oldest masonry fort in the world at St. Augustine, Fla., and is commanded by Capt. H. W. Campbell.

SHIP HOMECOMINGS always are joyous occasions to sailors and their families who meet them at the docks. NAS San Diego is a frequent scene of such celebrations. In these pictures the carrier Philippine Sea returns from seven months in Korea bringing Carrier Air Group 11 with it. In the first picture, Mrs. A. W. Shulz can find her husband, LCdr. Shulz, easier because he unfurled a huge sign with her name on it and an arrow pointing to him. In the middle picture, wives of VF-112 caught their shipboard spouses' eyes with a sign carried, in this case, by Lt. (jg) W. A. Warde, a member of the outfit who returned to the states earlier. In the photo are Mrs. W. F. McCullough, Mrs. J. S. Elmer, Ward and his wife, Mrs. J. B. Linder and Mrs. T. F. Lechner. In the right picture, Mike and Doug, sons of Clyde McKirty, AO1, look on in puzzlement as he greets his Missus after a long absence. He was with VF-114. The sign on the couple might have been the photog's idea, but they like it.

APPROACHING FOR A LANDING ON THE IMPROVISED 'DOCK' OF A HOSPITAL SHIP IS AN HRS-1 HELICOPTER FROM HRM-161 WITH CASUALTIES

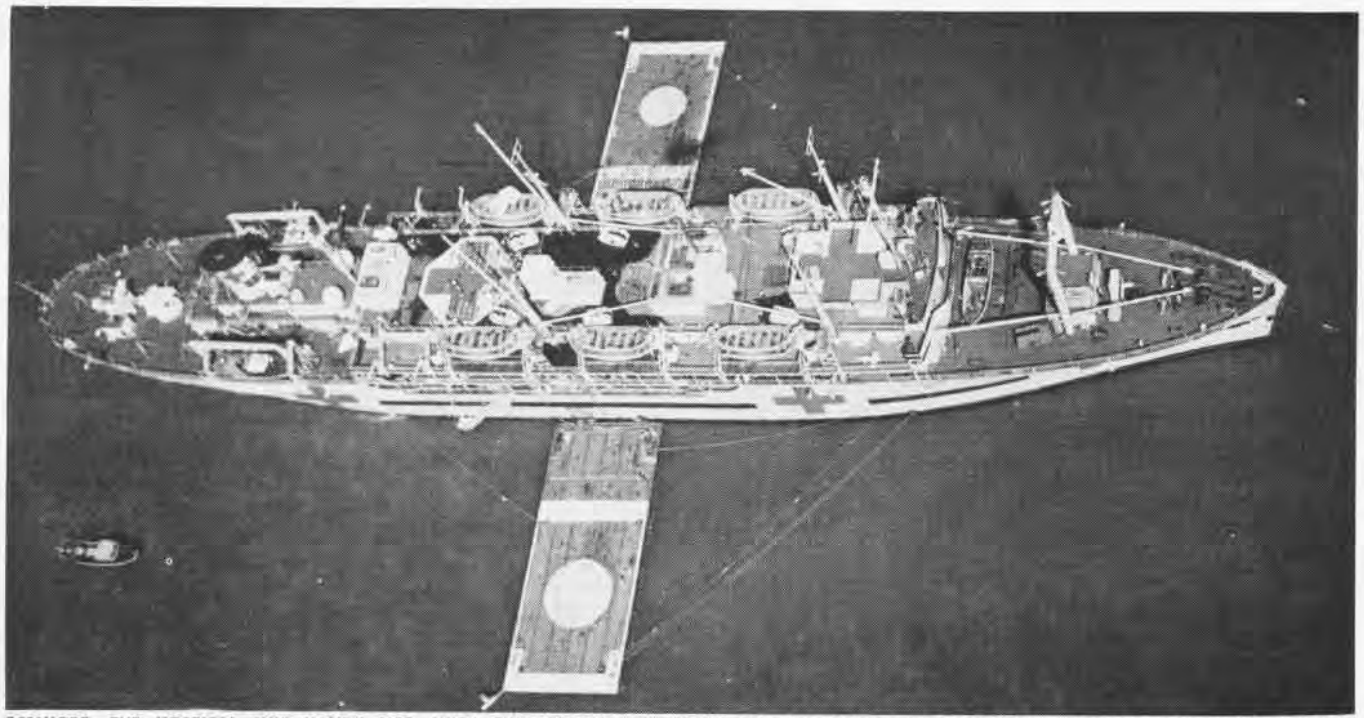
SHORE-TO-SHIP MERCY VIA HELICOPTER

BEHIND *the battle lines in Korea, a Bell helicopter lands to take out wounded fighters*

THOUSANDS of fighting men are walking the streets today thanks to quick action by medical corpsmen and rescue helicopters when they were wounded in Korea. The little Bell 'choppers', which can evacuate two wounded are being supplanted by bigger HRS-1's and HO5S's, which can carry 10 and four men.

Hospital ships offshore usually have landing platforms on the fantail which can handle three helicopters at once. The USS Haven, however, had none, so two pontoon barges were floated alongside to take four helicopters at once to unload wounded. As soon as the men are brought aboard they get immediate medical aid. Hospital ships have 27 doctors, a dentist, 27 nurses and 190 corpsmen to do the job.

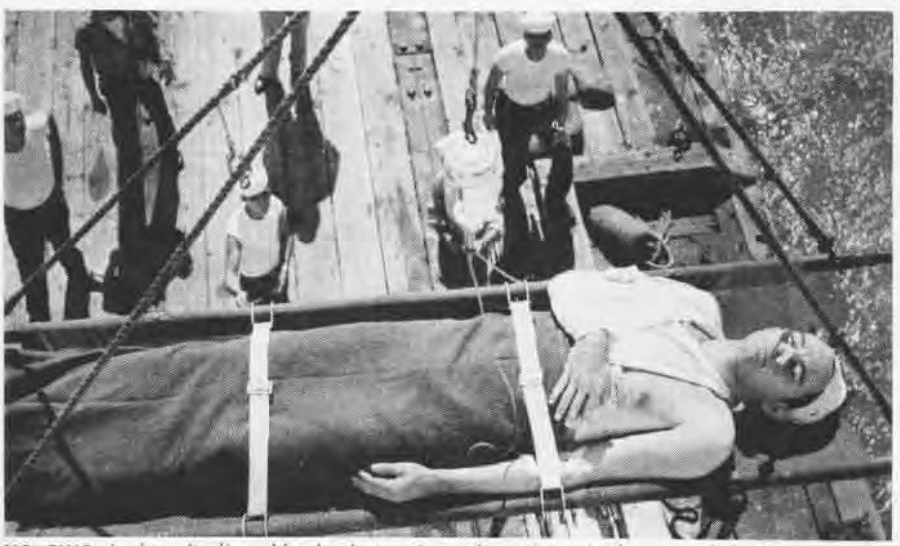
CORPSMEN *and buddies of wounded fighter bring Marine casualty to waiting chopper*



OFFSHORE, THE HOSPITAL SHIP HAVEN LIES, WITH TWO SPECIAL PLATFORMS FOR HELICOPTER BRINGING WOUNDED MEN FROM SHORE STATIONS

WITH HEADS *pulled down to miss the rotor blades, medical corpsmen carry a wounded man for quick aid; later he goes to ship*

ONCE THE *helicopter lands on the floating 'flight decks' at the hospital ship at sea, willing hands remove him in the stretcher*



NO TIME *is lost feeding blood plasma into the veins of the wounded Marine; bottle suspended over him contains plasma, administered as he is hoisted on hospital ship*

CHIEF *hospitalman holds plasma bottle as ship's men carry wounded man to surgery*

FINLAND'S AIR FORCE IS ACTIVE

FINLAND'S VIHURI TRAINING PLANE RESEMBLES AMERICAN TRAINERS, HAS 840 HP POWERPLANT

THE TINY Republic of Finland is bounded on the east by the Soviet Union, the largest country in the world, and on the west by the Gulf of Bothnia, Sweden, and Norway. Finland's unfortunate geographic position has contributed to her involvement in two recent wars. Unlike her friendly neighbor, Sweden, across the Gulf of Bothnia, Finland has not been able to maintain a 135-year neutrality.

Finland first became a republic in 1919 after declaring its independence from the disintegrating Russian Empire. With the emergence of Russia as and ever-growing Communistic empire, it was Finland's misfortune to be involved in the Soviet's early expansionist program. The first attack occurred on 30 November 1939, and, while the Soviets were vastly superior in equipment and manpower, the heroic Finns successfully resisted a nation 66 times their size for three months.

During the Russo-Finnish War, the Finnish Air Force made a valiant stand against overwhelming numbers of Soviet aircraft. At that time, the FAF was limited to three air regiments and a naval cooperation squadron with a total of 95 obsolescent aircraft. The equipment of this small force was made up of Fokker D.21's, Bristol *Bulldogs* and Gloster *Gamecocks*, single-seat fighters, and Bristol multiseat *Blenheims* and *Fokkers*.

Finnish-designed aircraft were produced at the state factory at Tampere. This factory was repeatedly bombed by the Soviet Air Force, but little or no damage was done to the factory. Towards the end of the war, the FAF received some Brewster *Buffalo* and Italian C.R.42 fighters. For the most part, aircraft acquired from abroad arrived too late to participate in the initial Russo-Finnish campaign.

While the Finnish forces were more successful in defense than the Russian forces had expected, the end was inevitable and Finland was forced to accept the Soviet's terms of surrender.

The Finns' second encounter with the Soviet Empire occurred in June 1941. At that time, Finland had become involved as co-belligerent with Germany when the USSR renewed its attack on Finland. As a result of this development, the Finns found themselves in the middle of an unescapable predicament. Carrying on to the best of their limited ability, the Finnish military forces prepared to defend their country for the second time in three years.

With the aid of Germany, Finland's land and air forces were able, by the end of 1941, to regain most of the territory previously surrendered to the Soviets. During this war against the USSR, the FAF profited by its alliance with the Germans and received from the Luftwafte some modern ME 109, G-2, and G-6 fighters, and Junkers JU 88A-4 bombers. As the war dragged on, the shortage of aircraft became so pressing that the FAF was obliged to use a number of captured Soviet aircraft.

Earlier during World War II, the Finns had designed and produced a fighter called the *Myrsky* (*Wind*). It was of mixed construction with plywood-covered wings, and a fuselage covered forward with metal panels and aft with plywood. The *Myrsky* was powered by a 1,065 h.p. Pratt and Whitney which gave the fighter a top speed of around 285 knots. Armed with 12.7 mm guns, the *Myrski* proved to be adequate against the Soviet aircraft encounted over the Finnish front.

TOWARDS the end of the war the Finns designed a new fighter, the *Pyorremyrsky* (*Whirlwind*) aircraft, that was of mixed construction similar to the *Myrsky*. Armament in addition to two 12.7 mm guns, included 20 mm cannon firing through the propeller hub.

The *Pyorremyrsky* power plant was a 1,475 h.p. Daimler Benz which gave the fighter a top speed of 320 knots. In appearance, this aircraft resembled the famous German ME 109 fighter. When the war ended, the development of the *Pyorremyrsky* ceased.

The Finns' success in their second war against the Soviets was short-lived, however, for when Germany was ultimately brought to terms in 1945, Finland was dragged into the position of a defeated nation. At that time, the Soviets were posing as brothers-in-arms with the West and desisted from further possessive moves toward Finland.

Apparently realizing the West's respect for the great stand made by the Finns against the USSR in 1939-40, the Soviets devised another method for encompassing the tiny Republic. This consisted of reparation claims against the Finns which were considered virtually

VIHURI TRAINER SIDE VIEW SHOWS MUSTANG-LIKE TAIL, BIG ENGINE

FINNISH-DESIGNED MYRSKY FIGHTER FLEW IN WWII WITH NAZI INSIGNE

GERMAN ME-109G DESIGN FLOWN BY FINNS IN WAR WERE GERMAN GIFTS

COMPARE THIS PLANE, THE PYORREMYRSKY, WITH AN ME-109G OPPOSITE

impossible to fulfill, and the loss of seaports, mines, farming lands, and the strategic Porkkala Peninsula. In addition, Finland's military forces, under the peace terms of February 10, 1947, were severely restricted.

Under the peace terms, the Finnish Air Force, including the Naval Air Arm, is limited to 60 aircraft and a personnel strength of 3,000 officers and men. In addition, the Finns are not allowed to maintain any bomber aircraft or to experiment with or construct remote control piloted or pilotless aerial weapons.

THE COMMANDER of the Air Force is Lt. General Helminen who also heads the antiaircraft artillery. While General Helminen is not a pilot, his second-in-commander is an aviator. The commander of the FAF is responsible to the commander of the defensive forces who has headquarters at Helsinki.

At the present time, the FAF comprises four regiments consisting of ME-109G fighters and various foreign and nationally-built trainers. In addition, each of the regiments is broken down into two squadrons. The FAF aircraft marking consists of an outer white roundel, an inner light blue roundel, and a white center.

Finland never possessed a large aircraft industry, the major plant being the aircraft construction section of the Finnish State Metal Works Valmet, at Tampere. Of interest is the fact that Valmet turned out British *Blenheim* bombers under license. This factory stopped building in 1945, after experimenting with the *Pyorremyrsky* fighter prototype, when they were temporarily forced to make railroad cars for the USSR.

With the threat of heavy interest payments on the value of reparations production not met on schedule, the Finns set to work to produce some $500 millions in material for the Soviets. In September of 1952, the last of these payments were delivered. In not allowing their newly developed industries to go idle, the Finns, among other things, are resuming aircraft design and production.

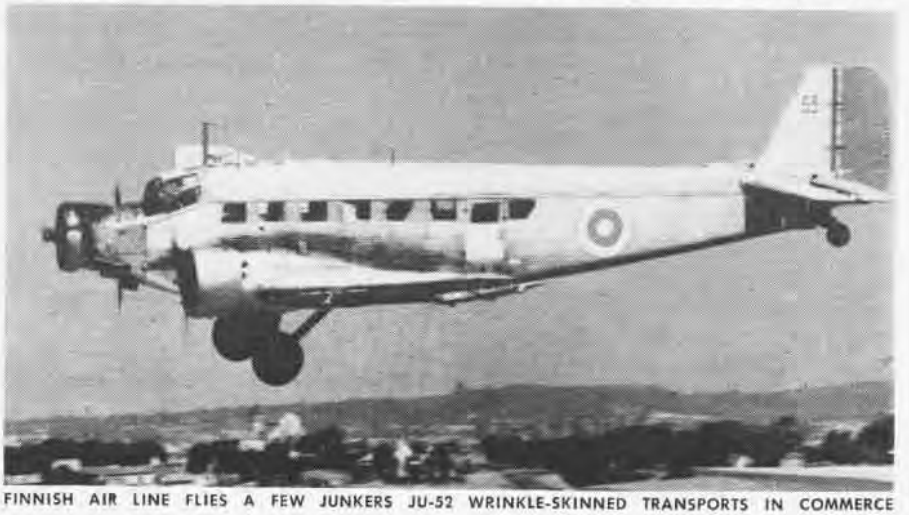
As pointed out, the small aircraft industry was forced to turn to reparation production, but now that the Soviets have been paid in full, Valmet has produced a new fighter/trainer. This aircraft, known as the *Vihuri* (*Squall*) is a two-seater, all-metal, low-wing monoplane with a conventional tail wheel-type landing gear. The prototype flew for the first time in February 1951, and since then it has been reported that the Finnish Air Force has placed an order for thirty *Vihuris*. Power is provided by a Finnish-built Bristol *Mercury* radial engine of 840 h.p. which provides the aircraft with a top speed of 240 knots. Production of the *Vihuri* will represent the first new delivery of aircraft to the FAF since the end of World War II.

Another new aircraft under development by Valmet, is the *Tuuli*. It is a four-seat, high-wing, cabin monoplane, powered with a single 150 h.p. Siemens radial engine. The *Tuuli* was designed for military liaison or sport flying.

Realizing the tremendous limitations placed on their military air power, imposed by defeat in two recent wars, the Finns have not lost sight of the advantages to be gained in developing their civil aviation. In this connection, the Finnish Government owns over 70% of Aero O/Y, Finnish Airlines, which operates routes over Scandinavia and Europe.

The airline operates Douglas DC-3's and has on hand some old Junkers JU-52's. Construction work has been in progress on a new Helsinki Airport which is not yet completed. It was opened temporarily this past summer to handle the Olympic traffic.

FRONT VIEW OF FINN'S MYRSKY FIGHTER RESEMBLES F-47, AIRPLANE HAD P&W 1,065-HP ENGINE



FINNISH AIR LINE FLIES A FEW JUNKERS JU-52 WRINKLE-SKINNED TRANSPORTS IN COMMERCE

TBM's ROUND FAMOUS SUGAR LOAF MOUNTAIN

VS-32 Tours South America

Aviators Impress Brazilian Officials

Air Anti-Submarine Squadron Thirty-two recently returned to NAS QUONSET POINT completing a whopping round robin that lasted two months, and circumnavigated South America in the process.

Departing from Quonset Point, the squadron boarded USS *Oriskany*, CV-34, at Norfolk, and after two weeks operations out of Guantanamo Bay, stood out for San Diego via Rio de Janeiro, Valparaiso and Callao.

The newly-modified *Oriskany*, with TBM's of VS-32 lashed topside, rounded the Horn, the first carrier to make the passage.

After crossing the equator, 21 officers and 209 men were initiated into the realm of King Neptune, raising the squadron percentage of *Shellbacks* to a record high.

Strutting for our South American neighbors, VS-32 operated at sea before President Vargas and other high Brazilian officials, followed by several flights over the city of Rio de Janeiro.

Navy Flight Film Winner

Three Movies Win in Italy, Scotland

Three Navy films produced through Naval Photographic Center won awards in competition with training movies of 27 other countries at international film expositions in Europe recently.

One aviation film, *Visual Flight Rules*, a 20-minute animated color movie to teach aviators how to fly VFR, won third prize in its class at the 13th International Exposition of Cinematrographic Art at Venice, Italy. The victory brought the Navy's total awards in national and international film competitions to 19 since 1946.

Thirteen government agencies, including the Navy, compered in the Venice exposition, with LCdr. Wilson R. Cronenwett of NPC in charge of the U. S. entries. The Navy led all other agencies in international awards.

The VFR movie and another NPC entry *Demonstrations of Perception*, a psychiatric study film, were shown at the 6th International Film Festival at Edinburgh, Scotland. All pictures shown are considered as prize winners.

In order to be judged in the Italian show, special sound tracks for the American films had to be made in that language. These tracks were made at the photo center this year for the first time. A total of 161 films was entered in the Italian competition.

Chandler Has Busy 3 Days

Baptizes, Dunks, Flies Dad in a Jet

CHANDLER AND FATHER IN COCKPIT OF METEOR

Lt. A. W. Chandler, Jr., now attached to NATC PATUXENT RIVER, experienced three rare events while attached to Jet Squadron 802 aboard the HMS *Eagle* while an exchange pilot with the British Navy.

First: His 16-months-old daughter was christened in the ship's chapel. Water from the ship's bell, inverted, was used for the christening. The ship's officers presented the baby with a silver christening cup.

Second: The day following the ceremony Chandler's *Attacker* jet caught fire as it went off the catapult. He ditched it and was picked up uninjured, but the christening cup, which he had taken along as a "mascot" was lost. The ship gave the baby another.

Third: The next day the first two events were overshadowed as he took his father, RAdm. A. W. Chandler, Inspector General, Dental, for a hop in one of the squadron's *Meteor* jet trainers.

50,000th Patient Evacuated

MATS Plane Flies Soldier From Korea

The 50,000th combat casualty to be air evacuated from the Far East by MATS since start of the Korean war arrived at Honolulu recently enroute home. He was Pfc. Frank R. Yocum of Allentown, Pa., who was wounded in fighting near the 38th parallel.

On hand to welcome the Pfc. was RAdm. John M. Hoskins, commander of the Pacific division of MATS. A hero of both World War II and the Korean action, Adm. Hoskins was the first combat casualty ever completely air evacuated from the Pacific.

In Pvt. Yocum's honor, Red Cross volunteers served refreshments while he was enjoying a traditional Hawaiian hula show in the air evac hangar. It was only a little over two years ago, June 25, 1950, that North Korean fighters struck Kimpo airfield outside of Seoul, South Korea, and raked a Pacific division MATS C-54 with machine guns and set it afire.

That incident started MATS' participation in the Korean war, which saw it bringing 50,000 injured men out of the war zone without the loss of a single life. At the same time it began lifting 110 pounds of critical cargo and personnel into Korea every minute of every day since that day.

Adm. Hoskins was especially interested in honoring the 50,000th evacuee since he was the first. The Admiral lost his right foot and part of his leg when the Japs bombed the carrier *Princeton* off the Philippines in 1944. After treatment on a hospital ship, he was put aboard a Navy seaplane and 36 hours later was at NAS ALAMEDA for transfer to a shore hospital in Philadelphia.

ADM. HOSKINS GREETS YOCUM AT MATS HANGAR

A year later he was back on duty with a peg leg commanding the *Princeton*, the only man so handicapped to command an aircraft carrier.

VR-3 Keeps Its Men Flying

High Flight Time More Than Five Days

VR-3, MOFFETT FIELD—Some crew members in this squadron spent as much as five days in the air during August. High man was Lt. D. O. Cameron with 125.4 hours flight time. W. A. Bufford, AL-3, was high for radiomen with 121 hours, Lt. K. K. Gaventa was high for plane commanders with 117, S. D. Pointer, ADC, was high for flight mechanics with 106. High first orderly was R. G. Zeigler, AN, with 101 hours.

● USS ANTIETAM—This carrier is being outfitted with a new installation that will improve carrier operation by making airplane landings safer. No more dope now.

VP-741 Trains in Mediterranean

NEARLY 5000 flight hours were logged and a plane availability of over 90 percent was maintained during the past five months by Jacksonville's own Reserve squadron, VP-741, as it operated with the Sixth Fleet and several NATO countries in the Mediterranean.

With a total of nine Navy P2V type patrol bombers, officers and men of VP-741 were deployed for the island of Malta via Bermuda, the Azores, and Port Lyautey, French Morocco, during early March.

Departing in three plane sections, all nine planes were on Malta within five days, and approximately 72 hours later were on their first all-out simulated strike against the Sixth Fleet.

Utilizing Royal Air Force Base, Luqa, as their operating base, all nine aircraft participated in two to three exercises with the Sixth Fleet every 30 days for five consecutive months.

In addition to these strikes, which included low level attacks, anti-submarine warfare, and mining, there were simulated war problems with the Royal Navy and Air Force, and the French, Greek, and Italian navies.

Moving only twice from Luqa, VP-741 went first to Taranto, Italy, where they participated in the five-day operation known as *Bee Hive*, during which they were credited with five enemy submarine "kills," and the logging of 417 hours.

Their second move saw them on Halfar, Royal Navy Field, where they combined forces with the French, British, Italians, and Greek navies to form *Operation Minex-Dragex* during the month of May.

At dawn on the first day of operation, all nine planes flew 200 miles, off the Tunisian coast, laid their mines, returned to Malta, reloaded and logged the 200-mile trip once again, all within five hours.

Three times during this month, all nine squadron aircraft were launched in rapid succession for simulated strikes on the fleet or for mining formations. Some of the pilots and crew members were airborne 15 hours daily as they highlighted this exercise by flying over 1000 hours during May.

One accomplishment to which the maintenance department points with pride is a 13-working-hour "12 point" engine change.

During this time, which is believed to be a record time for an advance base patrol squadron according to the local Lockheed representative, and Lt. Charles E. Littlejohn, maintenance officer of VP-741, the old engine was removed and the replacement broken out of the metal container, built up, installed and turned up.

Hugh F. Scharle, ADC, power plants chief, led the change crew which was composed of Joe Eshelman, AD1; Frank R. Stewart, AD1; Lawrence F. Tuso, AD1; Raymond W. Conaway, AD2; John W. Payne, AD2; Willis H. Klein, AD3; Quentin E. Lane, AE1, and Thomas F. Gramblin, AE3.

All of their stay on the Mediterranean island was not work as they went on seven day cruises to many old world cities in Turkey, France, Germany, Spain, Portugal and most North African ports. An audience with Pope Pius XII was granted to 18 members while visiting Rome, capital of the Italian country.

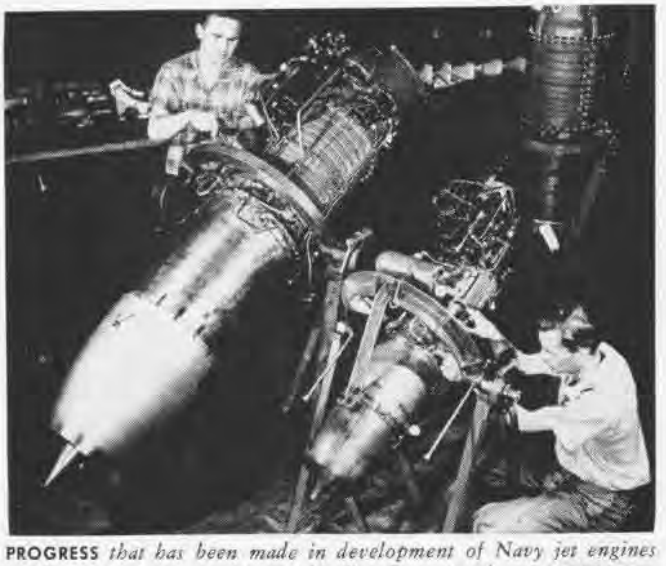
Adding to the numerous highlights of their tour was the interceptance of a "May Day" distress signal from a U. S. Navy *Corsair* fighter plane as it ditched into the Mediterranean.

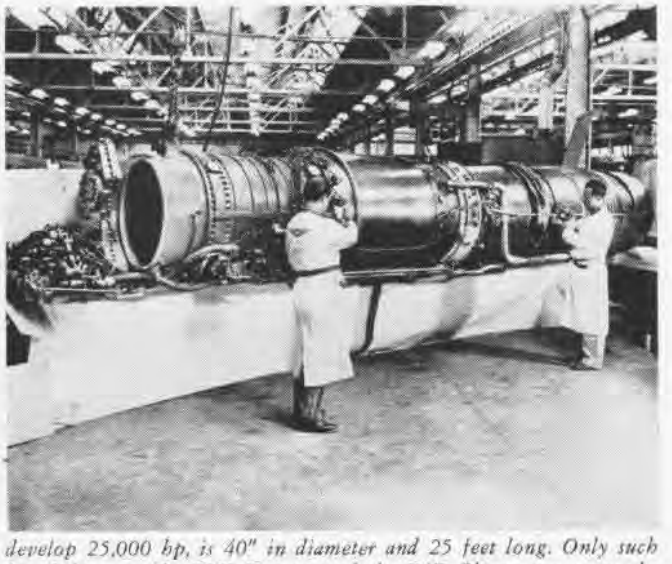
By directing a U. S. destroyer to the downed aircraft, Lt. Walter B. Winter, with the aid of Lt. Mike J. Carroll and Lt. Robert J. Nichols, played a large role in effecting the rescue of the pilot.

While returning to Malta from Naples, this same trio intercepted a distress call to Catania Airport, Sicily. The voice was that of a woman who turned out to be Jacqueline Cochran, noted U. S. woman pilot. Lt. Winter, who accepted the call, relayed the message and Miss Cochran landed without difficulty at Catania.

With exercises over, pilots and crew members sat back and relaxed with the assurance of a job well done. From His Majesty's Ship Glasgow came . . . "Very many thanks for giving our midshipmen such an excellent flying experience; they were most impressed."

VAdm. John H. Cassady, Commander Sixth Fleet, expressed his thanks, "Your performance of duty and execution of many difficult and arduous tasks has been excellent," and further stated . . . "Now on your return I wish you a happy homecoming and a sincere quote well done unquote."





PROGRESS *that has been made in development of Navy jet engines in the past seven years is graphically shown in these two pictures, showing 1945 and 1952 versions of Westinghouse axial-flow jets. On the left is the first jet to power an operational aircraft, the FH-1 Phantom. This J-30 jet developed 1650 pounds thrust and was about seven feet long. Beside it is the midget J-32, with 9½" diameter and 275 hp, used in guided missiles. Compare those two trail-blazers with the giant J-40 Westinghouse jet, latest in the Navy's fold. This will develop 25,000 hp, is 40" in diameter and 25 feet long. Only such big fighters as the F3H Demon and the F4D Skyray can carry the big jet. Because jets have thin wings, the new engine will be buried in the fuselages, instead of in the wing roots, as were the J-30's in the Phantom. The J-40 is rated with its afterburner as two and a half times as powerful as the four propellered engines in the B-29 Superfortress, biggest bomber to see combat action. In its qualification tests, the J-40 burned the JP-4 low-cost jet fuel recently developed.*

AWOL MODEL GIVES NEW JOB TO 'COPTER

NAVY resourcefulness is one thing they count on heavily at NARTU LAKEHURST. It produced a miniature Navy airship, the first successful flying model ever built, and discovered a new use for helicopters.

Lt. E. H. Cusworth, a "Weekend Warrior" at Lakehurst, was test flying the model airship at NAS GROSS ILE without the radio control when the blimp suddenly just started going straight up. Frustrated for only a moment, Lt. Cusworth hailed the base's air-sea rescue helicopter and he and the pilot set out in hot pursuit.

They caught up with the runaway 3,400 feet up, far out over Lake Erie. But there remained the problem of how to get it back to Gross Ile. They maneuvered the chopper until the draft from the rotor blades blew the little airship back over the shore. Then they flew above it, eventually forcing it to earth with the down-draft.

The renegade finally came to rest in a field several miles southwest of Grosse Ile.

The model airship was first test-flown in back of Hangar No. 6 at NAS LAKEHURST. The 17-foot airship, five feet in diameter, powered by two tiny gasoline engines and flown by remote control, is considered a masterpiece of model making.

Built on a scale of ¾ inch to a foot, it is a tiny replica of the Naval Reserve's 275-foot ZP2K-72 which is flown by Reservists at Lakehurst. Construction of the airship was a combination project, co-sponsored by Plymouth Motor Corporation and NARTU LAKEHURST. The helium-inflated envelope was built in the fabric shop at the air station. The car, which holds the radio-control equipment, the fins and engines, was a group project for model plane builders in Baltimore.

THE GOOD *old days came back to NAS Moffett Field with this G-ship. Hangar 1 was built originally as homeport for the Akron and Macon, handled 12 blimps this size*

LT. CUSWORTH in civilian life is regional manager for Plymouth Motor Corporation in charge of model airplane meets. He and his four-men crew of expert model flyers demonstrated the airship on its first flight.

It is anticipated that the airship model will be flown at many model air shows throughout the country, football games and wherever large crowds gather for the purpose of publicizing the NavCad program.

On a full-size scale, the first Navy airship to invade the Bay area after a six-year absence arrived at NAS OAKLAND. The G-type airship which is attached to ZP-871 at Oakland for training operations made a non-stop flight from NARTU SANTA ANA to NAS MOFFETT FIELD. A short stop-over was made in recognition of the part lighter-than-air played at Moffett Field, west coast hub of anti-submarine operations during World War II.

At the same time, members of ZP-871, headed by Cdr. D. C. Adie, took command of the G-ship from LCdr. J. R. Hunt, who piloted the blimp from southern California. When the airship reached Oakland, press flights, a dignitary flight and radio broadcasts from the airship were scheduled in honor of the occasion.

Not to be outdone in finding new tasks for helicopters, HU-871's helicopter was used to find whether it was feasible to operate such craft from a ship like the USS *Estes*, AGC-12, which never before had had any business with aircraft. On a wooden platform constructed over

A HARD *hat for Sonia! Frank Gordon "crowns" Miss Henie as LCdr. Jack Ver Lee and Chief S. N. Ellis bask in her smile*

MARJORY *"Ma Kettle" Main gets checked out on the finer points of parachute rigging by LCdr. Wayne Pomfrey and J. O. Prickett*

BILL *Drenten, HM2 at NAS Columbus when weekends roll around, films Columbus firemen in action during visit of Fire School*

HOLDING *scroll commemorating his goodwill tour, Congressman Mack shows his route to Lt. Modansky, Cdr. Rentz, Capt. Jones*

the rounded stern of the *Estes*, the HTE-2 from NAS OAKLAND made a succession of landing and take-offs, not only while it was alongside a dock at Mare Island but also while it was underway in San Francisco Bay.

Making the Public Fire Conscious

During a visit of Mobile Fire School NR 3001 to NAS COLUMBUS, the unit trained 67 enlisted men and 10 civilian firemen from nearby North American Aviation Corporation. Air Force firemen also sat in on the classes.

The unit was given newspaper coverage by the *Columbus Dispatch* and WBNS-TV showed films of the school in action. NAS COLUMBUS firemen are now trained in the newest firefighting techniques and the citizens of Columbus are more fire conscious.

Crash crews from NAS SPOKANE also did their share when they were featured in the city Fire Department's annual benefit show, "Midnight Alarm," at the Spokane Memorial Stadium. A capacity crowd saw the rescue team remove the dummy pilot from the blazing "aircraft" 30 seconds after the spilled gasoline was ignited. The flames were quelled 20 seconds later.

In addition to the fire-fighting demonstration, the station's FFN-3 and FFN-5 fire trucks and ambulance took part in the opening parade, a cavalcade of fire-fighting apparatus from the bucket brigade to present day, modern equipment.

Peter Mack Earns Award

Congressman Peter Mack, Representative from Illinois and "Weekend Warrior" at NARTU ANACOSTIA, has garnered more honors from his goodwill flight around the globe in a Beech *Bonanza*. Midwest flying farmers, meeting in their annual clinic, decided that the Congressman did more for private aviation in 1951 than any other individual. He was awarded the "Flying Farmer of the Year" degree.

He has also been awarded a scroll commemorating his globe-circling flight. The scroll was signed by commanding officers of NARTU ANACOSTIA squadrons and CNARESTRA, RAdm. L. A. Moebus.

Nola Reserves To Get New Home

Plans have now been completed for construction of a Joint Reserve Forces Training Center at Alvin-Callendar Airport, approximately eight miles southeast of New Orleans. It has been used by Nola Reservists as an outlying field.

The move from NAS NEW ORLEANS to Alvin-Callendar Airport was made imperative with the advent of jet-type aircraft in the Naval Air Reserve Training program. Present runways at NAS NEW ORLEANS are not constructed for jets. When the center is completed, it will be used jointly by Air Force Reserves, Air National Guard, Naval Air Reserves and Marine Air Reserves.

PILOTED *by Chief William L. Dunne with Cdr. T. G. Bondurant, NAS Oakland training officer aboard, 'copter lands aboard Estes, giving crew their first look at HTE-2*

Reserve Roundup

● NAS COLUMBUS—"Ain't never seen this at a fair afore," said Marjory "Ma Kettle" Main as she viewed the Navy's parachute rigging demonstrations at the Ohio State Fair. As part of their exhibit, NAS COLUMBUS set up a 40-foot long table and packed chutes for the public. Hundreds saw the shows.

● NAS DENVER—Organized Reservists from Denver crowned ice skating star Sonja Henie "Honorary Weekend Warrior" during her Denver appearance with the 1953 Sonja Henie Ice Review.

● NAS GLENVIEW—Instead of buying rags by the bale and discarding them when used, the Supply Department of CIC Officer's School has now contracted with a commercial laundry service to supply and clean wiping cloths. It's more economical and the cloths are almost 100 percent more efficient.

SHACK IN FIELD HOUSES FLIERS

NEW LETTERING *needed! LCdr. Luke Roddey gives an assist in putting up a new one to J. Collett, AD2, and Lt. Don Graves, as they become AAU-673 at their Charlotte hut*

TAKE ONE shack in a cornfield, the resourcefulness of 22 officers and 10 enlisted men, the generosity of the townspeople — mix them all together and a real home for Reserve naval aviators emerges.

When AAU-673 at Charlotte, North Carolina, was first organized as AVU (A)-3 in the Naval Air Reserve Training program, they had no home of their own. Their enterprising spirit soon became apparent though when they found they had an old Army barracks and converted it into a modern building with all the comforts of home.

OLD PIPE *becomes unit's flagpole. Lt. (jg) Knighton and Lt. Peebles add finishing coat*

A shortage of funds and low availability of equipment put the civilian occupations of the Reservists into play for the Navy. For instance, their CO, LCdr. Luke Roddey, is an electrical engineering salesman and contractor. As the unit met month after month at the Charlotte Airport, building and household supplies began to drift into view during weekend drills and were put into use.

The civilian population of Charlotte took up the Reservists' cause and contributed a hot water heater, used plumbing fixtures and a large sign signifying the unit.

When Capt. S. M. Pickering, CO of NAS ATLANTA, visited the offspring unit on one of their recent drill weekends, he wasn't at all surprised to find the pilots painting windows and flag poles and repairing plumbing fixtures when they weren't flying. By adding plumbing and electrical fixtures to the building, unit members have available accommodations for sleeping quarters during the weekends. Many of the "Weekend Warriors" who commute from a great distance to attend drills make excellent use of the facilities.

To illustrate the type of relations the Reserve unit has with the city, a total of $1500 was appropriated by city officials for moving the unit's building to another location on the field.

PRESERVING *the unit's chattel, Lt. (jg) L. R. Stanley puts a primer coat on windows*

Hard Hat Synchs Propeller

A new method of synchronizing a plane's propeller with that of the flight leader has been reported by Lt. (jg) Alwyn L. Eisenhauer of VR-31.

The present method calls for the wingmen to synchronize their props by flying behind the leader, sighting through their own prop at his and changing the speed until no "shadow" image appears. This method is somewhat dangerous as it requires flying close above or below the leader. If the props are out of synchronization, the shadow moves clockwise or counter-clockwise.

Eisenhauer reported he stumbled on his system by accident. While flying in a flight of F8F's, he leaned his head on the canopy. He found he saw the same illusion of "prop shadow" that he saw when looking through the blades at the flight leader's prop. He was wearing his H-3 hard helmet with liner at the time.

He found the shadow effect was present whenever he kept his helmet against the canopy. He changed his RPM while his head was in this position and the shadow moved the same as if viewed through his prop. The same experiment in an F6F and F4U gave similar results.

By use of the method, flight join-ups can be made and position held while power changes and prop synchronization are accomplished. Eisenhauer said his theory of why it worked was that the canopy vibrates the head in frequency with the prop RPM.

VMF-235 Creates Memorial

'Semper Fidelis' Is Still Their Motto

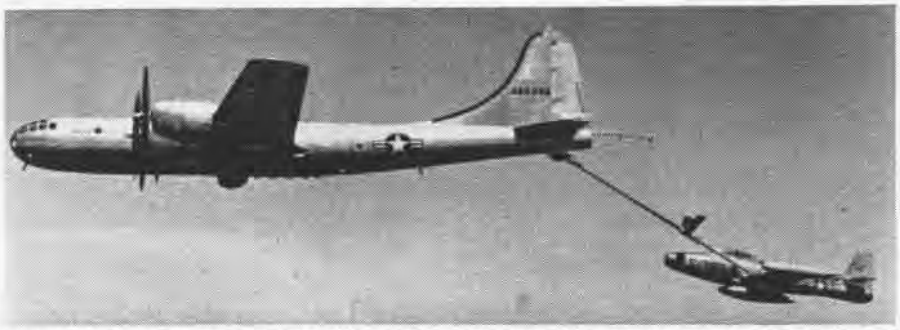
Among the first Marine Air Reserves to be called to active duty in 1950 was VMF-235 from NAS SQUANTUM. Within six months they were in Korea, their *Corsairs* striking back at the enemy on all fronts.

In the arduous months of combat that followed, a tragic ending was written for the squadron three times with the brief message "missing in action." Capt. James Stevenson, Capt. Bigelow Watts and 1st Lt. Ralph Thomas failed to return from their flights.

It was even more tragic for five youngsters who would never see their daddies again, most of whom were too young even to remember them. Somewhere, someone in the squadron had an idea for setting up a trust fund in memory of the three men. Letters went out to all former members of the squadron whether they were still overseas or had returned home again. The response was immediate. The "VFM-235 Korean Memorial Fund" was born, each officer pledging $100.

Primarily the fund is intended for the college education of the children. However, provisions have been made which will permit it to be used for other purposes in case of extreme emergency.

NAVY PILOT FLIES F-84 ACROSS PACIFIC



FLYING BOOM FROM RB-29 HOOKS ONTO WING EDGE REFUELING SNOUT ON SLOWED-DOWN F-84

NAVAL AVIATION had a small hand and a keen observer in the Air Force's mass jet refueling flight across the Pacific ocean during July in the person of Lt. Robert E. Parker, a Navy exchange pilot who flew one of the 58 F-84 *Thunderjets*.

Parker, formerly with VF-24, was assigned to the 309th Fighter Escort squadron for a year's duty as an exchange pilot. Excerpts from his detailed report on the flight follow, giving sidelights which are of interest to naval aviators. The Navy recently revealed it was refueling F9F *Panther* jets from an AJ-1 tanker plane while in flight.

Parker's account covered everything from collisions with terns and albatross at Midway island to trouble in rendezvousing with the *Superfortress* tanker planes.

Each *Thunderjet* carried two tip tanks of 230 gallons each and two pylon tanks under the wings of similar capacity. In addition, the internal fuel tanks allowed a total of 1362 gallons of fuel to be carried at full loading.

The overwater flight started from Travis AFB, Calif., and the first leg was to Hickam AFB, Hawaii. Cruise control figures for the entire wing were computed by an Air Force lieutenant, although Lt. Parker worked out his own navigational data just for practice and found they jibed closely. In addition to the dead reckoning data, each squadron had one A-15 bubble sextant located in the #2 plane as a safety measure. Current data was computed by B-47 navigators stationed along the route of the 10,985-mile, 11-day flight.

Each plane had a full complement of charts, VHF radio and other electronic gear. Pilots wore the Navy's Mk. 3 exposure suits as far as Wake island, plus a life vest, life raft and an antiblackout girdle. The last item was folded and inserted under the seat cushion. By hitting the test valve with the left elbow, the pilot could relieve his fatigued posterior.

Sixty-four jet planes took off from Travis, but owing to trouble along the various legs, only 59 made it to Iwo Jima, where the only casualty was sustained when LCol. Elmer Da Rosa was killed. His jet apparently picked up a bird in the airscoop while approaching a landing.

Some intricate organizational problems had to be worked out so that the RB-29 tankers would rendezvous with the correct fighters at the right places. As in any such ambitious undertaking, a few snarls developed at first when fighters spread out, strayed from the pack or could not find the tankers. Some tankers ran out of gas and raised their booms. Later in the flight these problems were all straightened out.

Improved planning enabled the fighters to find the correct tanker, with the boom operator calling in the plane. The only uneasy time on the big Hawaii hop came when a tanker rendezvous did not materialize when expected.

At Midway they were greeted by thousands of birds. Several were killed on landing and Lt. Parker himself took one in his intake duct, one on the windshield, one smashed the nose of a pylon tank, another smashed his port landing light and two hit the side of the fuselage.

Taking off from Eniwetok island's 6900-ft runway, JATO bottles were used to insure successful takeoff. Weather in the western Pacific between Guam and Japan was poor in some places. MATS and SAC supplied C-54's, C-97's, C-74's, C-124's and YB-97 planes to carry the "expedition" equipment, ground personnel, personal gear, spare pilots and field equipment of the pilots for the Transpac. Control teams for communications, operations and maintenance were sent out in advance to each stopping point by C-97. Final destination of the mass overwater flights was Misawa AFB, Japan.

There were a few instances of malfunction of the inflight refueling gear, but on the whole this portion of the operation was successful. Boom operators and tanker pilots turned in a "professional performance," Parker reported.

One of the first overwater leg aborts was due to an old type boom. The pilot involved had his refueling receptacle damaged on the first attempt to get fuel and he made 11 more unsuccessful attempts before turning back to Travis. When he landed both fuel gauges were registering zero.

NAVY PILOT PARKER WHO FLEW F-84 TRANSPAC

THE NAVY played a strong part in making possible the transPacific flight of the F-84's and also the second hop in October. Almost a score of Navy ships, including a carrier, a battleship, two destroyer divisions and two seaplane tenders were diverted to act as sea-based check points along the Pacific route of the second mass Air Force jet flight to Japan.

The ships remained at pre-determined stations along the various legs of the flight. They provided navigation check points, radio homing signals, weather information and rescue service. Two Coast Guard vessels also participated in the operation.

At the time of the July flight to Japan, nine ships were stationed along the route. This included one Coast Guard vessel and the regular weather station vessels between Hawaii and the mainland.

Navy tankers brought in extra loads of aviation fuels to bases along the flight route to load the RB-29 tanker planes which refueled the Air Force jets, and for refueling the jets themselves on the ground.

In addition, operations officers in CincPacFleet headquarters of Adm. Arthur W. Radford followed the movement meticulously around the clock to insure the success of the important flight.

MORE ABOUT PG SCHOOLING

THAT STUFF BORES ME

NO SOONER had "No PG for Me!" appeared in the July issue of Naval Aviation News than letters began to come in, many of them containing really constructive criticisms. For example, one officer suggested the initiation of some formal collegiate-level courses for the benefit of the LDO group.

Another pointed out that a large number of today's young naval aviators have backgrounds which, at best, are only mildly scientific, and therefore the number of officers eligible for PG work is relatively low. He suggested the establishment of a few pre-PG courses, particularly in math, which could bring officers up to the qualification level for technical PG courses.

The BUAER PG Committee is studying these problems and will do all it can to find solutions.

One problem which came up can be stated roughly, "I have only 1000 hours of pilot time right now. I want very much to be a squadron commander some day—a really good one, that is. If I go to PG school, I'll be that much better educated, but I won't build up nearly as much flying experience as I would were I sent to the Training Command as a flight instructor. Which is the better path for me to follow?"

Well, one thing's sure! You can't do both as long as there are 24 60-minute hours in a standard day. And another thing—a squadron commander must have a great deal more on the ball than proficiency as a pilot. In addition to the normal qualities of leadership, he must be able to think clearly. He must be able to appreciate readily the various aspects of the situation he is called upon to face. He must be able to make sound decisions, even on short notice. He must be capable of original thought. And, in these days of gadgetry, atoms and such, he must be familiar with the technical side of things.

Some young officers either are now so endowed or will become so as they gain experience. But two or three years of formal technical education certainly won't dull anyone's intellect, no matter how sharp he may be at the outset. Furthermore, flight instructor billets aren't the only shore-side jobs awaiting young aviators—even in Training Command!

As for the limited amount of flying one does at PG School, it used to be that the students did their flying with one hand on the throttle and the other dividing time between the stick, a cold cheese sandwich, a thermos of milk, and the text to be used in the class coming up that afternoon. Talk about flying proficiency, they must have had it.

Recently, however, this situation has been recognized as a problem requiring solution, and every effort is being made to give it more attention. A comprehensive flight syllabus—including an instrument course—has been established and is being followed. So things are looking up.

So - - you can't get 500 pilot hours a year while taking a PG course, and you can't get a PG education without going to school. Which road will make you a better squadron commander depends largely upon you. Remember, however, that very few officers retire once they have been squadron commanders. There's a great deal more to be done after that, and very little of it requires more than average proficiency in the air.

Now here's one we didn't cover in our July issue. It's the case of an officer who serves his first tour at sea and then, in his first year ashore, decides to apply for a course at the PG School. Almost without exception, the official reaction to his application is (in substance), "You're too late, Bub. You are already ashore. Adding a three-year course to even one year in your present assignment would make a shore cruise of at least four years for you, and that just isn't in the Navy cards. You took a little too long to make up your mind."

Finally, we face what, at the outset, looks like a hard nut to crack. It's the case of the young aviator who spent his first three years of commissioned service as a ship's officer, went to flight training, is now in his first operating squadron, and will finish that minimum two-year tour just in time to make the last PG class for which he is eligible. A year later his eligibility will have expired, and he will have had one and only one chance to apply.

In actual fact, it's not quite that bad. For the school year starting next summer, the door was left somewhat ajar by the last sentence of paragraph 8 of BUPERS Circular Letter No. 51-52. Under similar provisions last year, a number of waivers on the date of first commission "qualifications" were granted. It is expected that the same will be done in 1953.

So don't let old age discourage you. If you are a year or two beyond the zone of eligibility and really want a PG course, *ask* for a waiver. The worst the Board can do is say "No". And maybe they won't. After all, the greater number of years you will need waived, the better qualified prospect you must be. But don't procrastinate!

VF-191 Joins Centurion Club

All Pilots Win Citation From LSO's

Although every aircraft carrier has its *Centurion Club* of pilots who have made 100 or more arrested landings aboard the same ship, few can boast of a full squadron that has met the necessary requirements. VF-191, however, has won that distinction.

All VF-191 pilots now possess this certificate:

"Know all ye landing signal officers, air officers, catapult officers, flight deck officers, arm chair admirals, and members of vulture's row: Who are attached, have been attached, or anticipate being attached to the U.S.S. *Princeton*, that (name) having been low and slow, high and fast, wrapped up, overshot, eased gun, climbing at the ramp, settling in the groove, lined up both left and right, held off, dived for the deck, etc., and having avoided the potato locker, foot locker, lucky bag, and Davy Jones' Locker during *100* arrested landings aboard the U.S.S. *Princeton*, will henceforth be privileged to accept no advice, instruction, criticism, lip, guff, or comment in any form from any of the above mentioned people, and in particular, the arm chair admirals and the members of vulture's row . . ."

VF-191 RECEIVES MEMBERSHIP CERTIFICATE

MONKEYING AROUND WITH SKEETER

THE PROVERBIAL needle in the haystack would have been easier to find than a spider monkey in Japan. At least, that's the opinion of *Leatherneck* Cpl. Dan E. Stevens.

Stevens had adopted two spider monkeys while on a ranch in New Mexico. From that time on, he was convinced that the species made the finest pets. On his last rest and recreation leave from a Marine Ground Control Intercept Squadron in Korea, he determined to scour Japan until he located one.

When Stevens arrived in Tokyo, he immediately began his search. Two and a half days later, 6,000 yen in taxi fare poorer and with the use of numerous interpreters, he finally found *Skeeter*.

Skeeter is a blue-eyed, squeaky-voiced and imp-natured spider monkey. Although only in monkey adolescence, he is a confirmed tobacco chewer, especially fond of cigar butts. He likes to sip on Japanese beer, rubbing the foam off his mouth with his hind feet.

When Stevens found *Skeeter*, he knew he had to have him. So, without arguing the price he paid 18,000 yen, about $50 American.

Now that he had the monkey, his next problem was to get him back to Korea. Since most pilots frown on pets scampering around their aircraft, Stevens decided on subterfuge. He hid *Skeeter* under his dungaree jacket and kept his fingers crossed.

Everything worked fine until the plane approached the Korean coast. Then the stowaway got restless and began to complain about his cramped confinement. The co-pilot came through to investivate the strange squeaking in the plane. Much to his surprise all the Marines aboard suddenly broke out with a rendition of "Sweet Adeline" in high, squeaky, falsetto voices.

AERIAL ARTIST SKEETER LEAPS TO HIS MASTER

As soon as the plane rolled to a halt, *Skeeter* was whisked away to the comparative safety of the squadron. Overnight he became an unofficial member of the squadron's roster. As a most privileged member, he perched on the shoulder of corporals and captains, cooks and carpenters. He sipped beer at the enlisted men's club as one of the boys.

Stevens, who works in the squadron's transportation section, often takes *Skeeter* along on jeep rides. The monkey rides on the windshield, carrying on a conversation with the "other" monkey in the rear view mirror and honking the horn with his hind legs.

At the squadron movies *Skeeter* doesn't have much trouble with a big man sitting in front of him. He solves it by scampering onto his shoulders where he gets a comfortable and clear view of the picture. He claps along with the rest of the boys, jumps up and down during the exciting scenes and has been known to give forth with a whistling squeal at the sight of starlets.

Stevens and *Skeeter* have become inseparable buddies, but in a few months the *Leatherneck* will be returning to the states. Stevens says that it was hard finding *Skeeter* in Japan, it was tough getting him into Korea, but the hardest thing will be leaving him behind when he sails . . . unless. With a sly wink, he leaves the rest to the imagination. Who can tell?

THE NEW *F2H-3 Banshee (foreground) is larger than the previous models of the jet fighter now being used by the Navy and Marines. The new plane has greatly improved radar, permitting all-weather combat missions, more powerful armament and greater fuel capacity. Flying with the new Banshee in the picture above is an F2H-2P with three aerial cameras.*

PLANE CAPTAIN CARSON BEFORE RECORD FLIGHT

Hellcat Makes VU-3K Record

Hellcat Completes Its Eighteenth Nolo

Old Number 84, F6F *Hellcat* of VU-3, based at Ream Field, San Diego, the grandpappy of the squadron, successfully completed its 18th Nolo, "solo," for a VU-3K record formerly held by another F6F which had 15 to its credit.

Radio controlled drones, the main work of the squadron, besides KD work, serve the fleet for gunnery exercises. These drones are used in all phases of aerial attacks on surface craft. Whether its torpedo runs, dive bombing, or horizontal bombing runs, actual battle conditions are practiced with the lead plane guiding the Nolo on its dummy attacks.

Number 84, a real veteran of the squadron, is in the hands of William K. Carson, AN, plane captain of the aircraft.

Navy League 50th Birthday

Annual Banquet Will Be in Washington

The Navy League of the United States will observe its 50th anniversary in December, 1952, with ceremonies centering around the League's annual meeting, to be held in Washington, D. C., 4-6 December.

Frank A. Hecht, president of the Navy League, has appointed John L. Sullivan, former Secretary of the Navy, as chairman of the 50th anniversary banquet committee. The banquet will be on 5 December at the Statler hotel.

In addition to tracing its growth since 1902, and outlining plans for the future, it is expected that the Navy League will pay special tribute to naval heroes of World War II and its sea battles.

VW-1 PROVES DEFENSIVE THEORIES

WHILE Japanese *kamikaze* aircraft were slashing the United States Fleet on the Pacific Ocean battleground, fighting admirals turned strategists in search for an antidote to the Oriental suicidal tactics.

Today at NAS BARBER'S POINT, Oahu, T. H., Airborne Early Warning Squadron One provides a vivid example of the results of the wartime search for a GI swami.

This eyes-and-ears squadron's ancestry goes back to the fall of 1945 when the first of its kind was commissioned. Single-engined scout aircraft were used, and then two-engined planes were adapted to house the additional radar instruments.

Several months later the new outfit was incorporated into the Navy's Operational Development Force and designated VX-4.

During Atlantic Fleet exercises which followed, the real urgency of this type unit was visualized and the decision was made to locate one on each coast.

In 1948 Airborne Early Warning Squadron One made its West Coast debut at Ream Field, San Diego, California. Commander F. P. Anderson, who is currently commanding officer of VW-1, was executive officer of its mainland predecessor.

When VPW-1 later moved to NAS MIRAMAR, it was redesignated VP-51 and participated in fleet airborne early warning and anti-submarine warfare operations off the San Diego coast. They also

VW-1 CREWS MAINTAIN RIGID CHECKS ON PB1W

engaged in air defense exercises on the entire West Coast and chased typhoons in the Pacific Ocean area.

Then VP-51 played an important role in the atomic bomb tests at Eniwetok Island. A short time later the squadron was decommissioned because of budget difficulties.

However, owing to the value of an early warning unit, a detachment was maintained in the San Diego area at Miramar.

Constantly under evaluation, AEW operations proved a vital necessity to the security of the United States. Then on June 5, under command of LCdr. J. H. Copple, the Miramar detachment was deployed to the Hawaiian Area and Barber's Point with PB-1W aircraft and squadron personnel. This type plane is the Navy reconnaisance version of the U. S. Air Force B-17.

From its post-war conception as the "Cadillac Project" until the commissioning of Airborne Early Warning Squadron One on June 18, 1952, this comparatively new defensive theory has been subjected to a constant battery of tests and evaluations. Its rebirth as a full-scale operating squadron indicates the acceptance of this new weapon.

Exchange Pilots 'Join' AF

14 New Men To Spend Year 'Abroad'

A new crop of Navy and Marine aviators who will spend the next year of their flying careers learning how the Air Force does things has been selected by the Navy Department.

The 14 exchange pilots were given a two-day indoctrination course in the Pentagon before being sent out to various Air Force commands for duty. Talks were given them by John F. Floberg, Assistant Secretary of the Navy for Air, and by VAdm. M. B. Gardner, Deputy Chief of Naval Operations (Air).

The exchange pilots, their parent squadrons and the Air Force unit to which assigned follow:

LCdr. W. C. Mitchell, NAS Corpus Christi, Reese AFB, Texas; Maj. S. G. Warren, MCAS Cherry Point, Presque Isle AFB, Maine; Lt. D. C. Davis, NAAS Kingsville, Nellis AFB, Nev.; Lt. F. A. Axson, NAAS Kingsville, Williams AFB, Ariz.; Lt. W. J. Nichols, NAAS Kingsville, Moody AFB, Georgia; Lt. D. W. Henderson, VF-111, 123d Fighter Interceptor Squadron, Portland, Me.; Capt. Clyde Jarrett, 1st MAW, McChord AFB, Wash.; Lt. (jg) P. W. Perry, NAS Corpus Christi, Vance AFB, Okla.; Lt. (jg) D. R. Nolen, VF-22, Westover AFB, Mass.; Lt. (jg) R. B. Moore, VF-21, Otis AFB, Mass.; Lt. (jg) R. C. Adams, VF-112, Oscoda AFB, Mich.; Lt. (jg) C. L. Putnam, VF-62, Kirtland AFB, N. M.; Lt. (jg) L. B. Guerrieri, NAS Corpus Christi, Hamilton AFB, Calif.

In the accompanying photo they are, front row: Axson, Warren, Mitchell, Gardner, Putnam, Adams. Rear row, Nevitt, Nichols, Henderson, Davis, Nolen, Moore, Guerrieri, Perry.

Floberg Christens Runway

Project Is Tribute To Navy Engineers

The new runway at the Naval Air Base at Port Lyautey was christened by the first takeoff and landing of a plane personally piloted by John F. Floberg, Assistant Secretary of the Navy for Air. It was not an official inauguration of opening the runway for regular operations since the necessary night lighting features are not yet completed.

By a happy coincidence of construction and traveling schedules, Mr. Floberg visited Port Lyautey three days following the completion of the main runway. The christening ceremony was highlighted by having the first landing on the new runway made by Secretary Floberg with Capt. T. B. Clark, Commander, U. S. Naval Activities, Port Lyautey, as his co-pilot.

Construction of the runway with the required strength was a great challenge to U. S. Naval Engineers since it was necessary to work with exceptionally difficult foundation conditions in low land. The runway is constructed of reinforced concrete. Work on the runway commenced last spring by Seabees to take full advantage of the dry season and was completed this fall precisely on schedule.

NEW EXCHANGE PILOTS POSE WITH VADM. GARDNER BEFORE LEAVING TO JOIN AIR FORCE UNITS

FIRST ASW PLANES OPERATE FROM CV

VS-21 AND VS-871 PLANE ON FLIGHT DECK OF VALLEY FORGE, FIRST CV TO USE ASW PLANES

It was an unfamiliar sight. Big *Turkeys*, TBM's, and massive Grumman AF's with distended guppy bellies filled with the most complex electronic gear lumbered down the flight deck of an *Essex*-type carrier. It was the Navy's first use of such a carrier for anti-submarine warfare training.

The "Happy Valley," USS *Valley Forge* (CV-45) was home base and flagship for the exacting training problem. It was another "first" for the *Valley* as she was the first carrier to complete three tours of duty in the Korean area, and the first carrier to launch planes against North Korean targets in July 1950.

The hunter/killer training operations took place some 250 miles off San Diego, California; and RAdm. Delbert S. Cornwell, then Commander Carrier Division 15, was designated Commander Task Group 11.5, composed of the *Valley Forge* with VS-21 and VS-871 aboard in company with 11 destroyers and two submarines.

Size alone of this task group made the flagship potential of a CV particularly desirable, but it was happenstance that provided the Navy with this valuable experience. The exercise was planned months ago, and the USS *Rendova* (CV-114) had been originally earmarked as flagship for the Task Group. Then the *Rendova* was assigned to other duty and the lack of a CVE or CVL made it necessary to use the *Valley Forge*.

An extensive flag plot area, superior CIC space and equipment, as well as the more flexible communications arrangement, greatly facilitated control of the task group and its operations by Adm. Cornwell.

Two VS squadrons, with all planes and most of their personnel and equipment were comfortably embarked. For the first time, living and messing accommodations were adequate for temporarily-embarked personnel. There was no need for "hot sacks" or the conversion of passageways into living compartments as is often the case in the CVE. From the personnel standpoint, the exercise was a marked success.

The new "battleships" of carrier aircraft, the Grumman AF *Guardian*, operated alternate launches with veteran TBM's. Compared to other carrier aircraft, the *Guardian* is battleship-sized with its electronic maze of equipment and devices developed in the post-war years for detection of submarines from the air.

In the operation of the AF, another advantage in the use of the *Valley Forge* was noted. Wingspread of the AF is approximately 70 feet, and flight-deck width of the CVE's and CVL's used previously in carrier operations of this jam-packed-with-radar aircraft is in some cases only 10 feet more. Use of the forward elevator in moving the AF between the hangar deck and the flight deck of the CVE called for extreme care and almost the use of slide rules, since clearances of just a few inches are available with the AF.

All in all, the advantages of the larger flight deck and hangar deck space, sturdy arresting gear, heavier catapults, and the extensive elevator capacity were in marked contrast to the very limiting capabilities of the CVE/CVL type carrier previously used in ASW training exercises. Then too, wind and sea conditions for land-launch proved, in the employment of a CV-9-class carrier, to be a negligible factor. Land and launch operations were carried out at one time in a dead calm, and on other occasions when there were wind conditions of less than 10 knots across the flight deck. The 30-plus knots of speed available from the *Valley's* screws made up the difference to get the heavy TBM's and AF's aloft.

Replacement aircraft were quickly available; and aircraft spotting, versus maintenance requirements, always a troublesome problem on a CVE for ASW aircraft, was of less concern. As a result, aircraft availability showed a marked improvement.

All elements of ASW training are long overdue for a share of the spotlight. But owing to the possibility that any future war might involve extensive ASW measures and the high security classification that has been placed on such training and equipment, ASW ships and personnel now find themselves more or less in the same boat as the "silent service" of World War II. the submarines.

It is not enough to say merely that anti-submarine warfare training demands the best in personnel and ship handling, but for the time that is all that can be said. It must be remembered that in a typical ASW exercise almost all elements of the present-day Navy are involved; not only the aviation section with the floating airbase of the carrier and its searching and attack planes, but the destroyers as a screen for the carrier, and submarines as the theoretical enemy under the surface of the vast oceans which today's Navy must protect.

In speaking of this particular exercise, Adm. Cornwell said . . . "Anti-submarine warfare training is an essential part of the training of today's Navy. It represents the ultimate in coordination, since all elements of the Navy are involved; air, surface, and under-sea elements, and presents an integration of fighting forces that demands the best of personnel and ships. All units involved are deserving of high praise for the successful conclusion of this exercise."

VA-25 Wins AirLant 'E'

Squadron Gets 27 E's for Accuracy

USS MIDWAY—The ComAirLant battle efficiency "E" has been awarded to VA-25 as a result of high standings in competitive squadron exercises.

VA-25, commanded by Cdr. R. C. Tylutki, won 27 individual E's during the competition. Lt. (jg) M. O. Musick and Lt. (jg) S. T. Zink both won three individual E's in dive-bombing, glide-bombing and rocket firing. Zink also established a new fleet dive-bombing record with an average of only 11.7 feet with six bombs from his *Skyraider*.

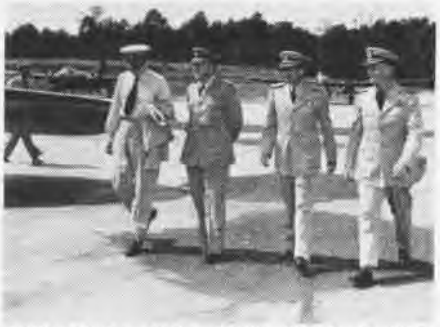
The squadron won 15 E's in dive-bombing and nine in glide bombing, with three for rocket firing.

Operating off the *Midway* in the Mediterranean, VA-25 flew 2,015 hours, which helped its air group set a Mediterranean cruise record for any air group.

AERIAL MINING IS DEMONSTRATED

HOW TO GET there fastest with the most mines, how to complete aerial mine-laying missions, avoiding detection where possible and minimizing enemy defenses when alerted, yet laying mines with pinpoint precision, represents a knotty problem of current and future importance to the Navy.

Working towards the best possible solution, a group of officers from CNO and BUAER, including RAdms. Thomas



ADMS. RUBLE, PRIDE, AKERS, BURKE AT VP-21

S. Combs, Richard W. Ruble, A. A. Burke, Frank Akers and RAdm. A. M. Pride of NATC PATUXENT, together with Capts. Wm. E. Gentner, Jr., and B. L. Bailey and Cdr. R. B. Albright, visited VP-21 at Patuxent. They were given a demonstration of the latest high speed minelaying tactics, using the squadron's P4M-1 *Mercators* with reciprocating and jet engines.

VP-21's demonstration took the admirals and captains through a complete cycle of a simulated wartime mining mission from briefing to debriefing. The exercise as flown included short field take-offs, section tactics, high speed wave top approach and drop to avoid detection by simulated enemy defenses. A maximum load of practice mines was laid in precise pattern in Chesapeake Bay. Observers rode in the cockpits during the mission and tried out the controls enroute to base and during landings.

The long, cavernous bomb bay makes it possible to carry a maximum load of 13,000 pounds of mines, or many combinations of ASW weapons, including additional bomb bay tanks for more range.

Using its two jet engines in addition to the prop power plants, the P4M can turn on bursts of speed when needed. Its reversible props help stop on short runways.

Mining, unlike bombing, has a peculiar restriction in that in the usual case the target to be hit is an unmarked expanse of water. This imposes on the mining agent the need for determining his drop point in relation to geographic references not in the immediate target area. An unknown wit once remarked:

"Aerial minelaying is a science of vague assumptions, based on debatable figures taken from inconclusive experiments, performed with instruments of problematic accuracy, by persons of doubtful reliability and of questionable mentality."

That this "science of vague assumptions" is of great importance in the defense of this nation was shown in closing phases of WW II when aerial mining cut the Jap merchant fleet to 10 percent effectiveness in home waters.

VF-191 Meets a Schedule

16-Plane Launch Held with Ingenuity

VF-191, PRINCETON—This squadron, commanded by Cdr. John Sweeny, boasts a red-hot maintenance department. But when the Task Force schedule called for 16 *Panther* jets to be launched, Ens. Jerry Lacy, engineering officer, shook his

EJECTION SEAT ON WHEELS READY FOR LAUNCH

head.

Only 15 jets were flyable, owing to a deck crash. The impossible called for an ingenious solution. The accompanying photo shows how VF-191 met the problem. Lt. Jack Waits volunteered to be launched in the ejection seat salvaged from the deck-crashed F9F. Lt. Grady Miller, catapult officer of the *Princeton*, sent him off seconds after the picture was taken, according to the tongue-in-cheek news report from the squadron.

Lake Champlain Is Active

First 'Magic Carpet' Carrier in WWII

Latest of the mothballed *Essex*-class carriers to rejoin the active fleet is the *Lake Champlain*, recommissioned at Norfolk Naval Shipyard on 19 September.

The carrier was modernized before being sent out under the command of Capt. G. T. Mundorff. This includes lengthening and strengthening the flight deck, cutting down the island side, installing larger elevators and higher capacity catapults, increasing aviation fuel storage space, installing an escalator from hangar to flight decks, improving electronic gear and arresting gear.

John F. Floberg, Assistant Secretary of the Navy for Air, who was principal speaker at the recommissioning, asked for the privilege of making the first landing on the ship.

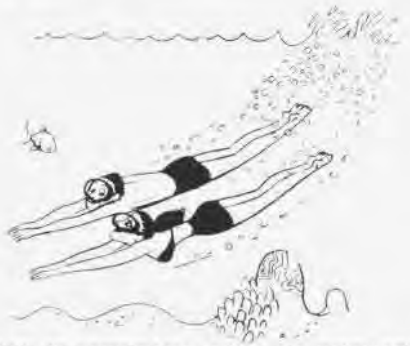
The *Lake Champlain* never saw battle action in World War II, joining the *Magic Carpet* run returning U. S. servicemen from Europe four months after she was commissioned. First carrier to do this work, she established a trans-Atlantic speed record, averaging 32.048 knots from Gibraltar to Newport News with 5,000 troops and 12 Army nurses. Prior to this time no U. S. warship had carried women across the Atlantic.

'Reverse Crawl' Has Speed

Fighter Pilot Tells How It's Used

The *reverse crawl*, a stroke for underwater swimming appears to offer a new survivor technique for naval aviators down in the drink and under enemy fire. It can be used at any time when it is to the advantage of a swimmer to get under water to avoid an enemy's bullet or to keep away from oil burning on the surface.

The stroke and its uses are described by Cdr. Bob Winston, USNR, in his book entitled *Fun in the Water* which Navy is procuring for training use. A naval aviator and WW II ace, Winston is the author also of *Aircraft Carrier* and *Dive Bomber*. He won fame when he chopped down three enemy planes in 30 seconds.



JOYS OF UNDERWATER TRAVEL ARE ILLUSTRATED

The reverse crawl is just what its name indicates—instead of using the crawl as formerly with its downward thrust to keep your head above water, you roll over on your back and use the same stroke in reverse. This keeps you under water.

"The reverse crawl is not only more efficient for swimming underwater parallel to the surface," Winston points out, "but it is also the fastest way to swim downward in deep water. Try it and you'll see how the upward thrust from your pull-through digs you down twice as fast as any stroke you've been using."

Two Close Calls For Chief

Lands Wheels Up in Second Emergency

Number 13 may be the nemesis of any number of people but Chief Aviation Pilot Burton D. Smith of NAS QUONSET POINT is wondering if 24,000 may not be his unlucky number.

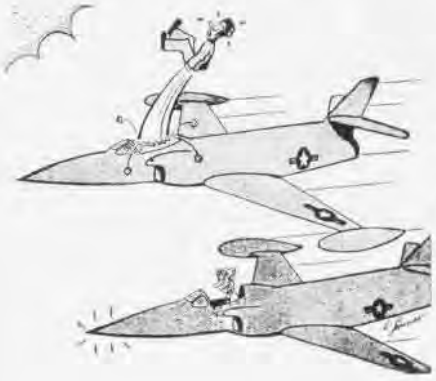
Twice within 10 days Chief Smith, an O&R test pilot, was faced with an emergency in an AD *Skyraider* at 24,000 feet over Quonset. The first time he lost an engine at that altitude while testing an AD.

The second time, taking off from the station in an AD-3 for the initial flight after a major overhaul, Chief Smith made a routine check and climb to 24,000 feet with all indications normal. His engine check completed at altitude, the Chief pushed over in a dive and opened his dive brakes.

Immediately a lag in operation of the dive brakes was noted and, after cycling the dive brake control, he saw his hydraulic pressure drop sharply and then dissipate to zero. Aware of the difficulty, he slowed up and attempted to drop his landing gear before all pressure was lost. He was unsuccessful in lowering the main gear of the plane.

Descending to the traffic pattern, Chief Smith notified the tower of his predicament and slowly orbited the field for an hour while several maintenance specialists on AD-type aircraft relayed instructions to him in an attempt to bring down his main landing gear. After all efforts failed, with only the tail wheel extended and the starboard gear trailing, Smith brought his aircraft in to a smooth landing, skillfully setting the plane down without flaps right beside the crash equipment on the runway.

● VR-21—It takes paper to fly Trans-Pac hops. To handle the weekly Midway island turn-around flight, it takes 36 different forms, comprising 211 sheets of paper and 45 sheets of carbon paper. This does not include bills of lading for the aircraft's cargo and mail.



VC-7 REPAIRS AJ IN MIDAIR

VC-7, ATLANTIC—How would you like to circle your AJ, its hydraulic system inoperative, for eight hours over an overseas landing field while your commanding officer below tried to figure out a "fix"?

This all came about in an episode of teamwork between VC-7 ground men and the plane in the air which saved a $500,000 airplane and its crew of four. The trouble started when a hydraulic line broke behind the emergency panel and allowed hydraulic fluid to flood the aircrewman's compartment floor.

LCdr. M. I. Kalin, the pilot, tried his utility and emergency hydraulic systems but could not lower his landing wheels, flaps or use his brakes. He radioed a description of his difficulties back to his home base. Cdr. E. J. McConnell, commanding officer of VC-7, organized a crew to simulate the same situation in an AJ in the hangar. When information needed was available, he broadcast it to the pilot via base radio.

JURY-RIG FIELD ARRESTING WIRE USES TIRES

LCdr. Kalin, using spare cans of hydraulic fluid, lines and pliers in the plane, created an emergency feed system which allowed the landing wheels to come down and yet save sufficient hydraulic pressure to allow the brakes to actuate. Just in case they did not hold, a long cable with numerous tires was placed on the runway to catch the arresting gear hook (*see photo*).

Kalin landed safely after an eight-hour ordeal. When gas tanks were checked, it was found only enough remained for 10 minutes more flying.

Others in the plane crew were Lt. Willard Mound, bombardier-navigator; G. C. Mead, an aviation electronicsman striker, and W. D. Heestand, aviation electronicsman second class.

Old Navy Not Like This

Sunday Mornings Sunny with Brunch

Sticking closely to the proved fundamental of profitable free enterprise by giving the customer what he wants, NAS MOFFETT FIELD'S commissary department is pleasing its customers in the general mess and making money for Uncle Sam at the same time. Their formula combines Sunday mornings, late-sleeping sailors and "Brunch."

The commissary officer, Lt. J. G. Leach, checked his figures for Sunday breakfast and found that the food wasted was unusually high because the galley didn't know exactly how much to prepare. Sometimes the late sleepers showed up in time, but as likely as not, they went hungry until lunch. The previously prepared food went wasting. To get the happy combination of well-fed sailors and cut down food waste, Lt. Leach instituted "Brunch."

HARRINGTON AND RYAN SAVE BUCKS AT BRUNCH

Meals are served at MOFFETT'S main galley all morning on Sundays. Food is cooked to each individual's order, so none is left over. As a result, the peak meal hour on Sunday is between 1030 and 1130. At first it was suggested that the duty section would object to eating the same food twice in one day, but the menus offered enough variety to prevent this complaint.

Another feature adding to the popularity of combining breakfast and lunch is the elimination of the usual Sunday evening "cold beans and bologna". The big meal formerly served at noon is saved for evening.

Not only is Uncle Samuel's money saved by less food finding its way into the GI can, but most men only eat two meals on Sunday. A close watch proved that the only repeaters on "Brunch" were the legitimate chow hounds in the duty section.

● NAAS WHITING FIELD—Magda Village Apartments, Navy housing project named in honor of one of the leaders of the *Blue Angels*, was dedicated recently. The *Blue Angels* and NavCad Choir performed in honor of the occasion.

● VR-21—Naval aviators who gripe about having to be both pilots and navigators will get comfort from the story of the MATS plane which radioed Midway island for help in locating that base. The regular navigator was too sick to work and the Air Force pilot and co-pilot did not know how to navigate.

NEW BOMB SHACKLE RELEASE ISSUED

BACK OF BOMB shackle release Aero 4A just issued to the Fleet is a story which features imagination, experiment and determination. The development of the release owes much to the initiative and perseverence of two BUAER engineers in the Armament Division, Robert Kemelhor and Daniel E. Schwartz.

The Aero 4A, which will replace the Mk. 1 type now generally employed with the Mk. 8 bomb shackle, illustrates the rigorous and thorough development and test procedure required before an aircraft armament item is accepted as Navy standard equipment.

Late in 1944, the Mk. 8 shackle and the Mk. 1 release were issued to the Fleet. Both items were urgently needed as replacements for the then unsatisfactory and dangerous bomb shackle, Mk. 4. They were rushed into production, and it became apparent immediately that production headaches were to be the order of the day.

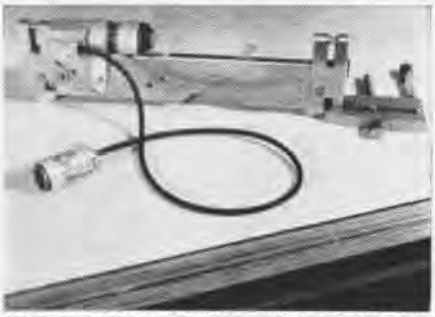
The Mk. 8 shackle offered no real production problem, but the Mk. 1 release was a tough nut to crack. The release was designed with a spring-loaded plunger, triggered by an electro-magnetic actuated linkage. It contained a tricky locking arrangement and transfer and indicator light switch. These components were placed in a die cast box and held by cantilevered pins.

The alignment of the linkage and switch proved to be a difficult and costly production problem. Each release became an individually hand-adjusted mechanism which defied interchangeability and required considerable time and effort to produce. But despite this, 150,000 Mk. 1 releases were manufactured between 1944 and 1945.

Kemelhor and Schwartz, then employed in the Aviation Ordnance Division of the Bureau of Ordnance, tried to solve the problem and worked together at home and during their leisure time on a release mechanism that, although a radical departure from existing types, showed great promise and, best of all, easy manufacture.

They made several assembly drawings and sketches of a release mechanism that was lighter and smaller than the Mk. 1 yet increased release forces 100 percent. When they showed their design to Cdr. C. W. Thompson, then head of the Bomb Equipment section, he was so impressed with its possibilities that he took them off their other tasks and assigned them, solely and at high priority, to its development.

By early 1945, the first breadboard model was made at the Naval Gun Factory. This model proved the practicability of the theory employed. Patent papers were then filed in the names of the two inventors with the government given a free license, and Kemelhor and Schwartz retaining all foreign and commercial rights.



AERO 4A RELEASE MOUNTED ON MK. 8 SHACKLE

When hostilities ceased and general demobilization was on, the new release, along with many other initial designs, was shelved for lack of funds. Early in 1948, the two engineers, now in BUAER, pressed for further development and test of their device, even though by this time, Schwartz was engaged in turret development work and Kemelhor was busy with a greatly expanded bombing equipment program.

A project was initiated at NADC JOHNSVILLE to make production type units. These were submitted for complete laboratory and flight tests. On 21 January 1952, the release was approved by NADC, and flight test approval from NATC PATUXENT RIVER was given 1 February 1952.

In June 1952, the McLean Development Laboratories received the first production contract with deliveries scheduled for September. Thus, after approximately six years, the Aero 4A bomb shackle release found its way into naval service.

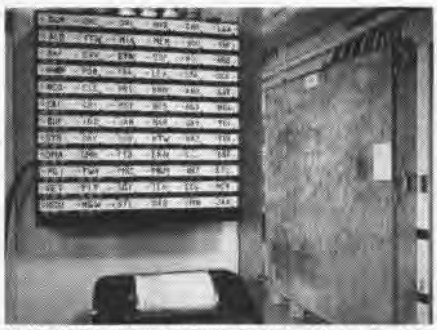
THE AERO 4A is a great improvement over the present Mk. 1 bomb shackle release. Although smaller in weight and size than the Mk. 1, it has double the release force. It can be mounted on the shackle either left or right, thereby making only one type of release necessary and reducing the supply problem.

Furthermore, the Aero 4A is a sealed unit which has passed all salt spray, icing and sand tests successfully. Owing to its balanced concentric design, it passed all impact (500 G's) and vibration tests with flying colors.

The U. S. Air Force has initiated a contract for a release utilizing the basic principle, but repackaged to fit its shackle. Also, the transfer switch has been removed, and the remaining spring loaded plunger unit has been repackaged into a "power solenoid." This results in a unit 1½ inches in diameter and 3¼ inches long and provides a force of 60 lbs. to 19 lbs. over a 1½ inch stroke.

The new "power solenoid," as Kemelhor and Schwartz call it, is being incorporated in several designs of bomb and rocket release equipment now being developed. It makes possible the power opening of bomb rack and shackle hooks without the use of pneumatic, hydraulic or explosive sources of energy. At the present time, several commercial applications are being investigated by industrial companies in the high pressure valve and circuit breaker field.

The Aero 4A bomb shackle release will not only appear in this form, but promises in the future to show up in many applications which require a lightweight, reliable, sealed, high force, quick-triggering electromagnetic actuating device.



COMPOSITE VIEW SHOWS PANEL, WEATHER MAP

Panel Shows East Weather

NAS OCEANA—An electric flight planning board to give pilots aerological and navigational aid has been constructed here by two enlisted men, Norman C. James, TD1, and Walter L. Willims, TD1.

It presents visually for the pilot distances, bearings and weather along the entire route of his proposed flight plan, all at a moment's glance, covering all the way from the east coast to Oklahoma City.

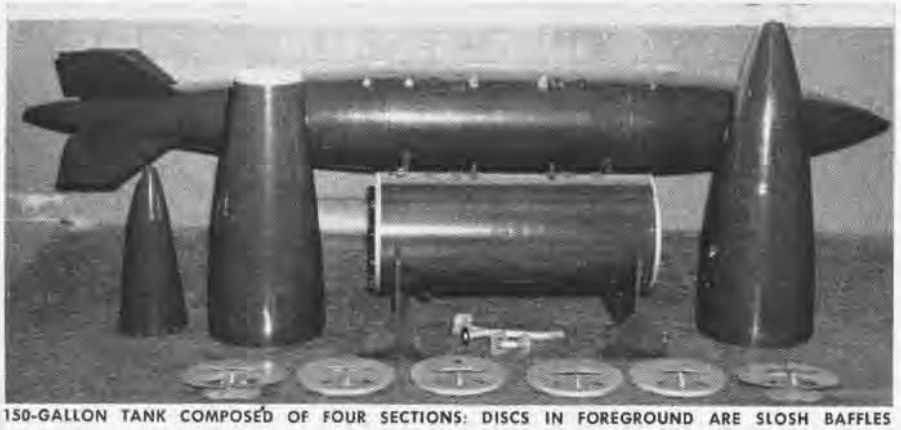
Seventy-two weather reporting points are all marked, each with a circular plastic opening. Behind each opening are three lights—white, green, and red—which are visible through the hole. The lights indicate the weather. A measured chain and a magnetic grid indicator centered at Oceana afford distances and bearings checks.

Wires from the panel lead over to a control panel, located immediately above the weather teletype machine. As reports come in on the machine, the operator turns on the appropriate lights, thus giving pilots a running, up-to-the-minute weather picture.

James and Williams made the device in 260 off duty man-hours at a cost of $200. At civilian prices, it would have cost about $6,000 to have built.

● USS HANCOCK—The first flattop to receive the British-developed steam catapult will be the *Hancock* now being modernized at Bremerton. It will be installed at NAMC PHILADELPHIA.

NEW STYLE TANKS, WITH A 150-GALLON ONE DISASSEMBLED AND NESTED, SHOW SPACE SAVING


150-GALLON TANK COMPOSED OF FOUR SECTIONS: DISCS IN FOREGROUND ARE SLOSH BAFFLES

NEW HIGH-SPEED PLANE FUEL TANKS

DEVELOPMENT of a new high speed external fuel tank, streamlined and stronger than present tanks, has been reported by BUAER Airborne Equipment division.

Two sizes of tanks were developed at the Naval Aircraft Factory, a 150-gallon size and one holding 300 gallons. These Mk 14 and Mk 16 tanks are nestable and are capable of being taken apart and shipped in half the space required when the tanks are assembled.

The design of the tank and the joining system is such that they are readily assembled in the field. So that they can be adapted to all aircraft, a simplified center of gravity control system together with a standardized suspension system have been incorporated.

The prototype tank was flight tested on the AD-4Q and F3D aircraft and passed all tests for catapulting, arresting, jettisoning, flight characteristics and fuel transfer. After 25 hours of flight, the joints in the tank still were leakproof.

To control the center of gravity during dives or steep climbs, the tanks have six slosh and C.G. control baffles incorporated. Simplified flapper valves operate by the sloshing of the fuel to keep the gasoline from making quick shifts forward or aft, although the seals allow some transfer between compartments. The tanks can be broken into four pieces and the whole nested together for space saving as shown in the picture above.

The 150-gallon tank weighs 109 pounds empty and the larger one 180 pounds. The former will be used on AD's, F3D, A2D, and other jet aircraft and the 300-gallon tank on AD's and the A2D. The latter is 19 feet long and 26½" in diameter, compared to 15' and 21" diameter for the 150-gallon tank.

The four sections of the tank can be locked together quickly with a finger and cam system. No fins will be included on the production tanks, although those in the photographs have fins. Flight tests at Patuxent revealed the fins, which would be useful on a bomb of that shape, served little purpose on a droppable gas tank. The tanks are expendable and for that reason have no provision for jettisoning of fuel from them while in flight.

Famed VR-2 Sets Record

VR-2 NAS ALAMEDA — Changing four engines on the *Marianas Mars* in exactly two hours and 35 minutes is the new record of the VR-2 Line Maintenance crew. The Line Maintenance gang had let it be known that they could and would hang four new power plants on the huge Mars faster than it had ever been done before. And so they did, one summer afternoon!

The big ship touched the water at 1325. As it taxied in from the sea land, final preparations were being made throughout the Engineering department for a real test of skill and speed.

The decision to change all four was based on several factors: an extremely heavy flight schedule required a high availability of all squadron aircraft; maximum gross loading on nearly every flight; high engine times; and the status of the *Caroline Mars*, beached for hull repairs and preventive maintenance.

At 1345, the *Marianas Mars* was tied up at her dock with passengers disembarking and Air Traffic personnel unloading cargo and mail. By 1545, beaching was underway. The taxi pilot and crew came aboard, took their stations and fired off the work-weary engines for the last time before they were to go into O&R for overhaul. At 1600 the beaching crew had received her at ramp No. 3, waded out and placed the huge beaching gear in position and begun the slow


BLANCHARD SUPERVISES PULLING OF ENGINE #1

process of pulling 80 tons of aircraft out of the water.

Meanwhile on the beach, last minute preparations were being made. Work stands, new engines and cranes to pull the old ones off and swing the new ones in place were ready in a standby status.

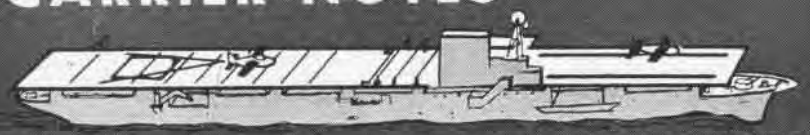
At 1620 the crews pushed the ponderous work stands in place and scrambled up to attack the engines. The first blow was struck at 1625. Two hours and 35 minutes later, the weary, sweating engine crews dragged themselves from the work stands while oil was poured into the oil tanks.

The operation was completed at 1900. All that remained was the routine post-operation adjustments and turn up of the engines.

The Line Maintenance men had made the record they had set themselves.

HELLO, MATS. WANT A RACE?

CARRIER NOTES



BUREAU OF AERONAUTICS—SHIPS INSTALLATIONS DIVISION

Arresting Gear Bulletins

The following changes and bulletins are being promulgated:

a. Arresting Gear Bulletin No. 36, dated 28 March 1952, requires that Mark 5 Mod 1 barrier stanchions remain unlocked when down during operations in order to preclude possible purchase cable failure caused by rubbing on terminal stops or stanchions.

b. Arresting Gear Bulletin No. 42, dated 28 March 1952, provides information on a bridge to span the barricade ramp and facilitate the passage of small wheeled vehicles during respot or re-arming operations.

Barricade Installations

The *Midway, Valley Forge, Philippine Sea, Antietam, Boxer, Princeton, Bon Homme Richard, Kearsarge, Coral Sea* and *Oriskany* have been fitted with barricade equipment, and the installations have been tested and certified for service use.

An extensive manufacturing program is underway at the Naval Aircraft Factory to provide equipment for barricade installations on the *Lake Champlain, Essex, Bennington* and *F. D. Roosevelt,* and to supply spares to various stock points in the supply system.

This accelerated installation program has taxed the productive capacity of the Naval Aircraft Factory shops so severely that barricade assemblies and spares will be in short supply for several more months.

H4 Catapults

Fleet units have reported the discharge of oil vapors into H4 catapult machinery compartments from the gravity tank during launching operations. The Naval Aircraft Factory is presently developing gravity tank manifolds to eliminate this condition. An H4 catapult change with necessary material is being prepared and will be issued soon.

Reliability of Equipment

The reliability of catapult and arresting gear equipment and preventive maintenance, were the subjects of a conference recently hld between Commander Air Force, U. S. Atlantic Fleet, Bureau of Aeronautics, Naval Air Material Center, and installing and overhauling shipyards. Reliability is vital at a time when both catapults and arresting gear are being operated at very high rates and at maximum capacity levels.

STOPPING *a wild-running airplane which careens up a carrier deck without catching an arresting wire has long been a worry in naval aviation. Barriers did the trick for years until pointed-nose, tricycle landing geared jets came along. Then the Davis barrier was developed, arranged to raise the lower wire after the nose wheel had gone over it. To augment this barrier, a retardation barricade has been developed, employing long vertical risers of nylon to catch the plane's leading edge of the wing. Shown here is one of the barricades being rigged by flight deck crewmen aboard the USS Boxer, operating off Korea.*

The Naval Aircraft Factory is establishing a procedure for periodic overhauls of this equipment at various naval shipyards. After agreements have been reached regarding overhaul procedures, ships installation equipment will be given either major or minor overhauls at stated intervals. This procedure, together with adequate shipboard routine maintenance, should increase the reliability of both catapult and arresting gear equipment.

In connection with reliability, it is important for operating activities to submit RUDM's on catapult and arresting gear equipment. Information on operating difficulties will help to determine the scope of overhauls. In addition, RUDM's should provide a list of parts for catapult and arresting gear equipment; this usage information is required to correct both allowance lists and shore-based spares.

Bearing Clearance Problem

Recently, an aircraft carrier reported excessive purchase cable wear on one side of the deck. Investigation showed that several frozen fairlead sheaves were responsible, and further investigation disclosed that improper initial clearance had existed between some of the sheave shafts and the sheave bearings.

If too little bearing clearance exists, enough heat can be generated to swell the shaft and the bushing, but the bushing has to swell *inwardly* as it expands, so that the initially inadequate clearance *decreases* until the sheave seizes on the shaft. This can happen in spite of apparently adequate lubrication and can be prevented by making certain that the proper clearance exists between shaft and bushing.

The minimum specified clearance for Mark 5 deck sheaves (9½" diameter shaft) is .027", and that for fairlead sheaves (5½" diameter shaft) is .018". Values of as much as .035" or more are acceptable for either size and experience has shown these to be trouble-free. Occasional checks of the temperature of each sheave should be made during operating periods, and any assembly showing suspiciously high temperature should be disassembled and checked at the first opportunity.

Control Valve Indicator

The increasing variation in gross weights and landing speeds among aircraft based on a carrier requires several arresting control valve settings for recovery of an air group, although the original control valve equipment provided the deck edge operator with the choice of either of two predetermined settings.

To meet this new requirement, the Naval Aircraft Factory fitted the USS *Leyte* with synchro units which permitted the deck edge operaor to choose any setting of the control valve, reading the setting at the deck-edge control station on an indicator of high accuracy. After the original indicator design had been modified to eliminate harmful condensation and fogging, the modified units are being service tested by *Leyte*.

A program to fit the carrier fleet with these units will be initiated, and the installation will be handled as an arresting gear change.

AVIATION ORDNANCE

New Gun Sight Model Ready

Aircraft gunners familiar with the gun sight Mk 18 Mod 6 will immediately recognize gun sight Mk 18 Mod 10. The new sight looks the same, but features have been added to increase tis usefulness, reduce manufacturing problems and make maintenance easier.

All Mk 18 gun sights provide the gunner with a gyro-controlled rectile image which displaces from the fixed reticle by the amount of the land angle. The simplicity, ease of operation and reliability of this sign have been proved in service.

One of the errors in the computation of the lead angle in the gun sights Mk 18 is caused by the inaccuracies in the foot pedal ranging. The gunner may be so engrossed in the tracking problem he neglects the proper ranging functions. To reduce the foot pedal ranging problem, the Mod 10 has been designed to accept radar range inputs from an *airborne ranging only* radar. The redesigned unit also has the advantage of decreasing the maintenance problems in the range serve loop.

In installations where an airborne ranging radar is not available, the gun sight Mk 18 Mod 10 may be used with foot pedal ranging. In this event, the "radar manual" transfer switch on control Mk 17 Mod 1 would be permanently left in the "manual" position.

The new gun sight, therefore, has a twofold use: (1) it may be used where radar ranging inputs are available, and (2) it may be used in installations where the radar is not available and foot pedal ranging information used. This will permit east installation of a radar range unit at a later date.

Rocket Electrical Connectors

The unsatisfactry performance of jack plug type electrical connectors on rocket motors now in stock has been reported. This performance is traced to the type of locking pins use.

Loose locking pins have fallen out of the electrical connectors at various stages of handling. Some have been found in packing cases in which the motors were shipped. Some have fallen out when the electrical connector was inserted into its receptacle, and others have backed out while motors were carried in flight.

New plastic electrical connectors, Mk 10 Mod 4 and Mk 12 Mod 2 for 2"25 subcaliber aircraft rockets, Mk 9 Mod 3 for 3"25 rocket motors and Mk 11 Mod 4 for 5"0 rocket motors. These will be available in the near future.

Meanwhile it is recommended that the rubber washers be cut down in size if practicable and that the locking pins be prevented from backing out by staking, or by passing a wire around the plug over the two locking pins after grooving or notching the pin heads.

DAMAGE TO CAMERA BY MELTING SHOWN HERE

Keep Cool with Dust Covers

There have been several reports of difficulties encountered with the sight unit Mk 8 Mod 0 in the F9F installation during hot weather. This sight unit is a component of the aircraft fire control system Mk 6.

The camera wax which seals the collimating lenses in the sight has melted and run on to the lower surface of the lenses. From that point it has dripped and spread throughout the unit, seriously impairing the optical system. The plastic gel cells mounted on the rear of the sight unit have melted, drooped, and in some cases separated.

Thus far all cases reported have occurred when the aircraft were on the ground with the canopy closed for extended periods of time. Actual measurements disclosed that cockpit temperatures of 150° F ambient were encountered.

In all instances the top surface of the sight unit and the gel cell were painted with a dull coating of back lacquer when installed in order to reduce windshield reflections. Dust covers supplied with the sight units were not used. Thus, the sight units were exposed to the direct rays of the sun and the non-reflecting black surfaces made for temperatures far higher than the ambient cockpit temperatures.

Laboratory tests are now being conducted on the camera wax, and a new gel cell capable of withstanding higher temperatures is in production. In the meantime, these conditions can be prevented or at least retarded through the use of aluminum reflective dust covers (BUORD drawing number 674648, stock #J942-C-4016-100).

Recent M3 Gun Explosions

Occasional explosions of the 20 mm automatic gun M-3 have been reported. In nearly all reports, BUORD notes that the explosions occur in the feed mouth of the AN-M2 feed mechanism, or in the chamber of an unlocked gun.

These accidents are directly due to overcharging the gun, causing a loss of tension on the feed mechanism. This, in turn, allows a "free floating" round in the feed mouth. This free round then may vibrate into the chamber where the primer can be struck by the projectile of the succeeding round. Another result is loss of tension on the feed mechanism as outlined in OML GV 2-51.

Repeated attempts to clear a jammed gun can only lead to trouble with very little or no chance of clearing the jam.

New Aircraft Gun Tompions

Plastic muzzle tompions for both the .50 caliber and 20mm aircraft guns are now in supply. They may be obtained from BUORD under the following stock numbers: .50 caliber, J941-T-1100-10, and 20mm, J941-T-1100.

The tompions were designed to prevent moisture and cold air from entering the muzzle during flying in bad weather. This purpose is defeated when the pilot fires a trial burst from the guns immediately after takeoff. Ammunition should be fed in so that an AP-T or an INC round is fired first.

Carpeting Tried on Air Strips

There has always been more than one way to deal with dust, and getting it under the carpet may have been the inspiration for the new development the Marine Corps is testing.

The Corps is buying carpeting to test it for use on its battle front fields for the protection of costly jet engines, where dust is a big problem. The order for some 100,000 yards of 40-inch wide fireproofed cotton duck costs approximately $214,000.

The cloth to be tested was developed by the U. S. Army engineers, and the Air Force is to test it too.

The cloth will be laid down on landing strips using metal mats. The Marston mats were famous in World War II and worked out efficiently for conventionally engined aircraft. It did not matter too much that each plane landing set up a heavy cloud of dust. But with the development and operation of jet aircraft, it became essential to find some method of combatting dust which plays havoc with delicate jet engines that suck it in.

The Marines are anxious to find out how effective the carpeting is and whether it should be laid under or over the metal mats.

The material is fireproofed to make it withstand jet blast. It is also non-absorbent so that rain will not settle on it and rust the metal mats.

THIS CHAMBER *cleaning device has been developed by VC-35 for use where power and compressed air is not available. It can be used until shop cleaning is available*

LETTERS

SIRS:

Concerning the reluctance of officers to apply for post graduate courses, I would like to discuss the situation of a large group of young officers.

The average officer in this group entered the Navy in his teens through the WW II Aviation Cadet Program and subsequently was accepted for the regular Navy. He is an extremely stable career officer judging from the infrequency of resignations among this group.

Each year BUPERS C/L umpty-ump is eagerly read by a large majority of these officers. However, they are caught in a race between time and the five-term program. Until the latter is completed, they are ineligible for academic reasons. Unless the five-term program is completed soon, they will have become ineligible by reason of age, without ever having had a chance to start an "avalanche" of applications.

If the Navy will concern itself with the eligibility for PG school of these officers, it can look forward to a return to normalcy—"tossing out the letter and ducking."

FREDERICK J. BROWN, LT., USN

VC-61

SIRS:

I enjoyed the discussion in the July 1952 issue of NANEWS entitled "No P.G. for Me!" I wonder if another group should not also be considered—the Limited Duty Officers. I will restrict myself to Aviation Electronics, the field in which I am involved.

The LDO program was instituted to meet a specific need. The LDO's can consider, however, that all of their formal technical training is behind them. Service schools available to them are usually "refreshers."

In my opinion, the sore need for technically qualified officers extends beyond the AED level—it appears to be quite as painful at the maintenance level. Equipments and system installations have become exceedingly complex; techniques new to the Navy are introduced in these more complicated arrays.

Often the squadron Aviation Electronics Officers is in a position to confer with contractor or Bureau engineers, or with AED's in staff billets. Then he is at a disadvantage. Not only can he not speak the language of the engineers, or understand completely their reports, but what seems more important, he does not have the same point of view that engineering-type training brings. His horizon may quite naturally be limited to the squadron, by the nature of his assignment.

But it should not remain so. Why not college level engineering training for the LDO? Not the full course leading to a degree, nor the technical course which deals with specific equipments, but selected courses, slanted towards a particular field. For example, the training for electronics LDO's should include electricity, chemistry, physics, and mathematics through calculus.

J. A. PINO
LT. (J.G.), USN

PENSACOLA, FLORIDA

SIRS:

In your August issue, there is an article on cargo nets used as a rocket barrier aboard a carrier. This article states that this is a "practical solution" of stopping rockets. This does not seem feasible for the following reasons:

1. When not in use (about 99% of the time), it takes up too much space in the catwalks.

2. Primary Fly, many times, is not aware (they should be) of hung rockets until the plane is in the cross leg or in the groove.

3. Too much time is involved rigging.

4. Plane cannot taxi forward until barrier is removed.

Until something better is produced, why not use something already built into ever carrier, the arresting wires?

Normally, the rocket does not break loose from the rack on first landing of the plane, but at a point where the arresting wire actually halts the plane and starts to pull the plane back. At this point the alert arresting wire personnel have dropped all other arresting wires, thereby allowing any rocket that comes loose to go forward unchecked.

If the arresting wire were left raised until the plane actually comes to rest, any rockets that may come loose will be stopped or checked by the fin of the rocket hitting the raised arresting wire. Should the rocket go under the arresting wire, it will surely stop the rocket.

LCDR. LUKE T. PETERS, JR.

STAFF, COMFAIRHAWAII

¶ BuAer reports new rocket launchers are being built which retain the rockets on arrested landings. Some development work is underway in an attempt to jettison the launcher plus rocket by explosive releases. Use of arresting wires to stop errant rockets is considered of doubtful value since the rocket fins probably would be detached or sheared and the missile would continue up the deck unchecked.

SIRS:

This "Splinter" detachment operating with CAG-1 on the *Coral Sea* from March 1951 to October 1951 made an enviable safety record which other outfits might like to shoot at.

VC-12's Detachment #6 completed 407 carrier landings, 127 of which were at night, without a single barrier or deck crash. It operated with four AD-4W aircraft and flew 1105.9 accident-free hours.

Officer-in-Charge was LCdr. F. L. Brady, Jr., and other pilots were Lts. S. J. Jacobchik, W. F. Tiemann, Jr., W. O. Hoskinson and Lts. (jg) R. E. Davis, J. A. Mulligan and V. C. Lopez:

LT. W. O. HOSKINSON

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● THE COVER

Deck crewmen of the carrier Boxer refuel F9F's which have just returned from strikes against Korean Communists. Naval Aviation News photo.

● SUBSCRIPTIONS

An unclassified edition of Naval Aviation News, containing special articles of interest to Reserves, is available on subscription for $2 a year through Superintendent of Documents, Government Printing Office, Washington 25, D. C. Changes of address for this edition should be sent to the above address.

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SQUADRON INSIGNIA

FOUR kinds of Navy and Marine squadrons are represented in insignia below. VS-25 advertises its anti-submarine mission with a sub being crushed in a mailed fist. Sun and moon indicate day and night operations and the lightning all-weather flying. VC-6's stylized fleur-de-lis superimposed on a gold trident is encircled by a scarlet "omega" signifying the ultimate in seapower. VR-31 is one of the Navy's two ferry squadrons and its insigne of a streamlined stork carrying a baby plane westward is appropriate for its mission. Marine VMF(N)-542's insigne plays up the Tigercat it once flew in good and bad weather conditions.

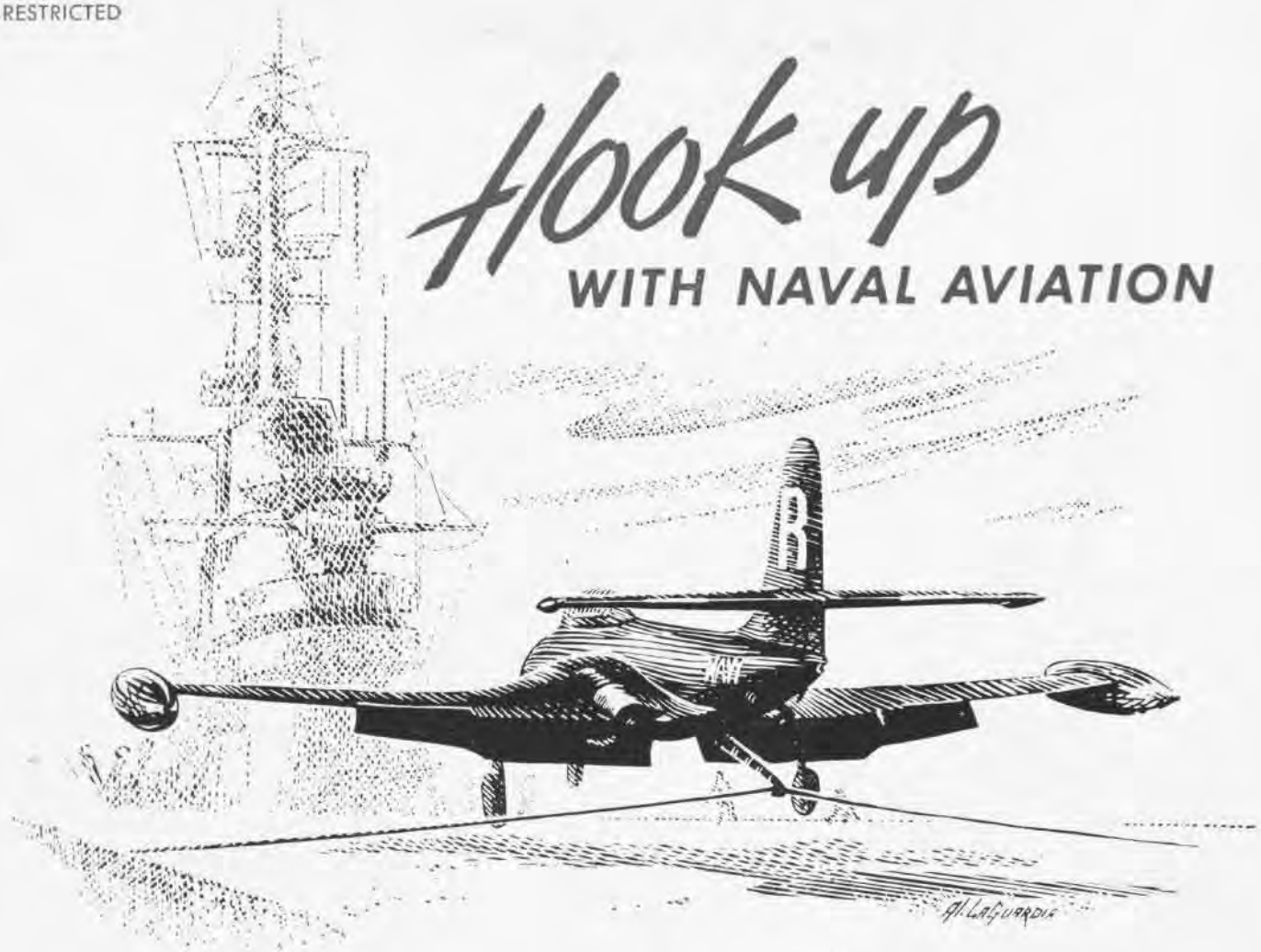
VS-25

VC-6

VR-31

VMF(N)-542

Hook up
WITH NAVAL AVIATION



Chances are, if you're reading this, you're already "Hooked up" with Naval Aviation. You're doing your job, but you can do more. You can help some young man towards his commission and wings by steering him into the Naval Aviation Cadet program. How about that old school chum, or your young cousin? Or, maybe your girl friend's kid brother might make a good Naval Aviator if he were steered right by you. You know Naval Aviation because you're in it. No one else is better qualified to point out the advantages of a career in the Navy's air arm than you are. What you say carries weight at home, so tell a NavCad prospect about Air Navy. Here are the basic qualifications; you know the rest. Age 18-27, two years of college and good health. He can apply at any Reserve Air Station or NARTU, Office of Naval Officer Procurement, or Naval Recruiting Station. You can do your part to help get more good men on the Naval Aviation team by writing that prospect now. Like public relations, NavCad recruiting is an all hands job. Don't put it off. Write a prospect—right now. Help "Hook up" a NavCad. The Navy needs pilots.

HELP RECRUIT A NAVCAD