

NAVAL AVIATION

NEWS



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TALOS TODAY

These photos show Talos, a guided missile in being, aboard the cruiser USS Galveston today. Above, mount captain stands alert to launch; below, weapons are checked in cruiser's storage area; and right, technicians make final adjustments before putting Talos into launcher.



ASW



THEY KEEP THE KILLERS HUNTING



A SIZABLE portion of the Navy's total annual budget is spent in searching for better ways to insure the nation's security against enemy submarines. ASW has become one of the biggest words in any military dictionary. To define ASW completely is an impossible task. This story is presented in an effort to show, through ASW activity at NAS Quonset Point, the whole fleet's dedication to its antisubmarine responsibility.



CO AND EXEC OF VS-39 BRIEF TRACKER PILOTS ABOARD LEYTE

MORE THAN twelve million residents of metropolitan Portland (Maine), Boston, Providence, New York, Philadelphia and Baltimore turn into their bunks nightly, confident that their particular city is being adequately protected against a sneak submarine attack.

Those citizens who read their newspapers and magazines regularly have seen dramatic accounts of how the Navy's hunter-killer groups are geared to work, what tools they use to detect a submarine and bring it to bay.

Many of the same residents know a large share of each Navy dollar is spent for anti-submarine warfare, and they feel entitled to the best return from their tax investment. What John A. (for average) Citizen in any one of the cities listed does not know, however, is how dependent he is on the Anti-Submarine Defense Force and, in particular, a 1700-acre plot of real estate in New England called Naval Air Station, Quonset Point, Rhode Island, with its multiple commands which collectively form a major center of carrier-based anti-submarine warfare. All five of these cities

lie within a 325-mile radius of NAS, QUONSET POINT, R.I.

Let's use a specific but hypothetical example to show how thoroughly Quonset backs up a given hunter-killer group of the Atlantic Fleet Anti-Submarine Defense Force.

A commercial airlines pilot reports sighting a submarine at Point X, somewhere northwest of Bermuda. The sighting could, of course, have been made by a merchant ship, or by one of the many fleet air or surface units which stand guard over the critical area.

A rapid check is made to learn whether an American submarine was supposed to be at Point X at the time of sighting. The answer is negative.

An ASDeForLant hunter-killer group is dispatched from an East Coast base or diverted from its station at sea toward the Point X area. To continue the hypothesis, let us assume that the carrier *Leyte* or *Tarawa*, provisioning at Quonset when the sighting was made, is rushed to sea to make contact with the unidentified sub.

Inside Narragansett Bay or at the harbor mouth, the carrier picks up its screen of Newport-based destroyers who have also been called suddenly into action.

Nearing the search area, the carrier's *S2F Trackers* take off and fan out to begin a careful systematic search, which may extend for hundreds of miles.

Radar operators in the plane study their scopes to find a periscope, a snorkel or even the sub itself, on the surface. Every surface contact must be investigated and identified before proceeding. A powerful searchlight is used for identification at night. ECM (electronic counter-measures) equipment is valuable in the search.

The aircrew also strains for visual contact with the sub—still one of the most reliable systems for surface detection. MAD (magnetic airborne detection) gear protruding from the tail of each *Tracker*, which probes the water below for metallic objects, and sonobuoys which are dropped in pattern to relay underwater sounds back to the plane by radio, are used to localize and pinpoint the sub when its location has been sufficiently narrowed down.

The search continues through good weather and bad, by



H5S-1 PILOTS AND CREWMEN OF HS-9 TAKE TIME OFF FROM THE HUNT FOR A PHOTO WHILE SQUADRON IS DEPLOYED IN MEDITERRANEAN



ROCKETS AND BOMBS ARE LOADED ON S2F



SIMULATED SUB IS KILLED BY DESTROYER



S2F TRACKER RETURNS TO VALLEY FORGE

day and night, until an underwater contact is reported.

Once contact is made, "kill" procedures are put in effect. The *Tracker* which first located the sub is joined by other S2F's. Together, they use electronic equipment to pinpoint the sub's location, plot its course and speed, and pin the submarine down.

If the S2F's (called "Stoofs" by their crews) are able to localize accurately the submarine, an aerial attack with depth charges or torpedoes may be made.

One must also remember that the atomic age has not by-passed the ASW forces.

However, the modern submarine is an elusive thing and the carrier division commander has already dispatched a surface attack unit of two or more destroyers. The aircraft carrier is also closing the contact to bring it within range of the helicopters.

The cat and mouse game is on.

But in this case, the mouse packs an awfully big wallop. The helicopter crews are briefed and awaiting in the carrier's ready room. Once in range, the HSS copters are launched to team up with the destroyers and S2F's, using their dipping sonar for an accurate fix on the submarine.

The teamwork results in a successful attack and the submarine is doomed—theoretically—in peacetime.

RECENTLY, detachments of early warning aircraft have been added to ASW aircraft carrier forces to increase the radar coverage, keep the flag better informed of the exact location of his dispersed forces, and automatically relay radio contact and supplementary reports.

An all-weather fighter squadron has just "transitioned" to jet aircraft and it stands ready to furnish detachments when called on for the air defense of the ASW force.

But, you ask, where does NAS QUONSET POINT, a shore station, figure in the kill of a submarine? The seagoing force that finds and sinks the sub is part of the *operational* Anti-Submarine Defense Force, while Quonset is a *support* activity.

Quonset's mission is to support the fleet and that mission has no real boundaries.

Let us retrace the steps and see how very thoroughly Quonset was involved. The carrier was fueled and provisioned at Quonset. Avgas and jet fuel were provided for the planes. VS, HS, VAW and VF(AW) squadrons had occupied hangars at Quonset between each deployment.

Maintenance crews had used the Quonset shops to make the aircraft ready for service, while other facilities at Quonset had been used to calibrate the aircraft's vital search equipment.

The *Tracker* pilot and crew who found the sub, the ship's CIC men who controlled the plane's search pattern, the helicopter crews that flew the hold-down and the fighter pilots who stood ready to fly air cover had all taken "post-graduate" refresher courses in Quonset classrooms and trainers.

All aircrewmembers had gone through sea and land survival school at Quonset. When the ship and its air units deployed suddenly, the crews felt confident that they were well trained and ready for the big job.

Perhaps of more importance to the morale of the men in the hunter-killer group was the fact that they could be confident that when they returned from the kill they would be "back home" at one of the Navy's finest stations. Home—wives, children, sweethearts, golf, swimming, fishing, quabogging, and much work and training for an even better ASW performance. Home and morale are made up of many factors.

What NAS QUONSET has to offer the ASW fleet is a story within itself. *How* the offering is made proves even more interesting.

Physically, the station occupies 1700 acres of land which



VAW-12 OFFICERS AT NAS QUONSET ARE READY FOR DEPLOYMENT

juts out into Narragansett Bay across from the Naval War College. Most of the present station was built on land donated to the federal government in 1892, although a large area has been filled in to seaward since the property was first acquired by the Navy.

Quonset's cash value in land, buildings, shops, airstrips and equipment is inventoried at \$95,000,000, but its value as an instrument of fleet readiness, crew morale and fighting spirit defies appraisal in terms of money. Let's take a quick look at the Fleet ASW units and commands based at Quonset.

Commander Fleet Air Quonset exercises administrative control of Atlantic Fleet Air units located or based north of latitude 38 degrees, 30 minutes north, and west of longitude 65 degrees west, not otherwise specifically assigned to other commanders. Factually, this consists of the administrative control and supervision of training of HU-2 at NAS LAKEHURST, all the squadrons at NAS QUONSET POINT, and coordination of the aviation logistic



MAD 'STINGER' EXTENDED, S2F TRACKER FLIES SEARCH PATTERN

requirements of all the aircraft carriers and squadrons in the northern area.

In essence, the number one job is to provide well trained and equipped squadrons for the use of other operational fleet commanders. Most of these squadrons consist of those with air anti-submarine type missions for operations under the over-all command of ComASDefForLant with headquarters in Norfolk.

The basic requirement is the ability of these squadrons to be ready at all times to deploy aboard the aircraft carrier and perform their mission of hunting out and destroying enemy submarines. This is an around-the-clock all-weather mission for the VS squadrons.

Considerable research and development is in progress for the refinement of the instrumentation of the ASW helicopters to give them an all-weather capability, but their operations are now restricted to conditions wherein visual references exist.

Preparedness to handle the job is of the highest order. A flight simulator and maintenance trainer for the Grumman S2F Tracker, a maintenance trainer for the HSS Sikorsky ASW helicopter, a universal twin-engine aircraft instrument trainer, and trainers for the operation and maintenance of the individual component parts are operated by detachments of FAETULant and mobile trainers under the

Naval Air Technical Training Command, NATTC, MEMPHIS.

Complete training facilities are operated for Carrier Airborne Early Warning Squadron 12 which furnishes detachments of aircraft to the large attack carriers and the ASW aircraft carriers for the purpose of detecting targets or the enemy by airborne radar.

Complete training facilities are operated for All-Weather Attack Squadron 33, which has many specialized missions, including ASW attack capability for the large attack aircraft carriers. Training facilities, including a flight simulator, are operated for All-Weather Fighter Squadron Four whose mission is to supply detachments of jet-fighters to the ASW carriers for anti-snooper defense and all-weather fighter protection.

Utility Squadron Two tows the aerial targets for the ships' gunnery practices and supplies jet fighters for CIC exercises. FASRon Two assists in the maintenance of the VS squadron aircraft and serves as liaison between the air station and the squadrons for all support requirements.



DIP SONAR STREAMED, HS-11 'COPTER HOVERS OVER SUBMARINE

The physical location of ComSubLant at New London, Connecticut, and ComDesLant at Newport, Rhode Island, makes informal coordinated ASW exercises with destroyers and submarines, as well as those scheduled by formal operation orders, more readily available and capable of being continuously carried out. Informal briefings on Air-ASW capabilities are given at least monthly—particularly to the destroyer personnel based at Newport.

Support facilities for the ASW force offered by and at NAS QUONSET POINT are extensive and adequate. The radar air traffic control center currently under construction will materially aid aircraft arrivals and departures under instrument conditions and will increase the use of the sea operating areas.

The major ASW problem is the technical improvement and development of equipment to increase the capability for detecting and attacking the high-speed submarine. The solution to this lies basically in the hands of the Navy's research and development organization.

Another big problem is the adequate training of assigned squadron personnel in the use of equipment currently available to the fleet in the most effective manner and to the limit of its capabilities. Normal rotation makes training of replacement personnel the number one job at Quonset. Synthetic training devices, formal school in tac-

tics and maintenance, plus plain hardware work, maintain the ASW squadrons at a constant high level of readiness.

Commander Carrier Divisions 14 and 18 are hunter-killer carrier division commanders under operational control of Commander Anti-submarine Defense Force, Atlantic.

USS Tarawa and USS Leyte are anti-submarine aircraft carriers under operational control of ComASDeForsLant through ComCarDivs 14 and 18. The *USS Wasp*, home port at Boston, also conducts most of her operations out of Quonset Point.

Air Anti-Submarine Squadrons 31, 32, and 39, each with 20 *S2F Tracker* aircraft, have a primary mission of carrier-based antisubmarine warfare. A hunter-killer air group is made up of one fixed wing ASW, one helicopter ASW squadron, and one all-weather fighter detachment or a detachment of airborne early warning aircraft.

Helicopter Anti-Submarine Squadrons 9 and 11, each with about 14 specially equipped ASW helicopters, have a primary mission of carrier-based anti-submarine warfare.



VECTORED IN BY PLANES, ROOKS (DD-804) BEARS DOWN ON SUB

Fleet Aircraft Service Squadron Two furnishes technical and logistic support to the shore-based ASW squadrons and furnishes ASW weapons to the squadrons.

Carrier Airborne Early Warning Squadron 12 and All-Weather Attack Squadron 33 each furnish detachments to attack carriers which, in addition to other missions, provide ASW protection to the attack carrier groups. VAW-12 has jumped into the ASW picture recently and more directly with a commitment for a detachment on each anti-submarine carrier.

All-Weather Fighter Squadron Four, which has just converted to jet aircraft, will soon furnish all-weather fighter detachments to the ASW carriers as needed.

Fleet Airborne Electronics Training Unit Atlantic, Detachment Three, provides training facilities and instructors for the many facets of an ASW squadron, varying from the use and maintenance of the most complex electronic equipment to survival methods.

Utility Squadron Two provides services for anti-aircraft practice, radio and radar calibration, and air control for Newport-based ASW destroyers, destroyer escorts, and the aircraft carriers.

Support given fleet units by NAS QUONSET covers a wide range. Large, complete Overhaul and Repair shops, employing 2700 civilians, are available to the ASW forces

as well as to other aircraft of the operating carrier fleet.

NAS QUONSET provides barracks, recreation and messing facilities for approximately 3200 fleet squadron personnel involved in the ASW program. The same recreational facilities used by Quonset-based squadrons are available to an additional 3400 men who make up the ASW carriers' crews.

Docking space for two carriers, hangar space for squadron planes and office space for staffs are provided on the station. Charlestown Naval Auxiliary Landing Field is manned by Quonset sailors to give fleet pilots field carrier landing practice between deployments.

In all, there are more than 11,000 officers, men and civilians stationed at Quonset, regularly or on a between-deployment basis: 570 officers and 3200 men in Fleet Air ASW units, 120 officers and 3400 men on the Quonset-based carriers, 3000 civilian employees, 114 officers and 1010 men on the Naval Air Station.

Wherever a visitor goes on the station he sees busy,



ZPG-2 AIRSHIP REFUELS FROM USS LEYTE DURING ASW EXERCISE

intense activity, and he senses a very strong will-to-do.

He learns from the exec of a VS squadron what things are really like on the hunt and how strongly the squadron people lean on NAS Quonset.

"Sure, we'd like a radar that would help our *Tracker* pilots pick up a periscope or a snorkel at a greater distance," says the officer.

"And we'd like to be able to tell the men when we will be deployed and when we will be ashore.

"We'd like to overcome the problem of rapid turnover of personnel, which causes us to follow a constant course of high-pressure training.

"But we recognize our problems and meet them head-on. We know the stakes and we know we must do the best we can."

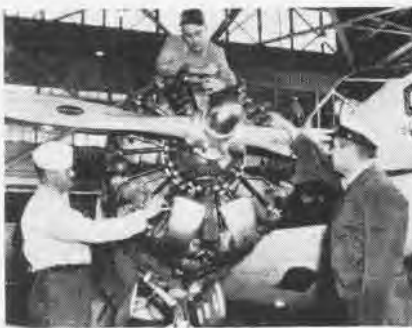
He explained how vital the training at Quonset is to his aircrewmembers.

"The *S2F* is an excellent airplane that requires precision flying. The pilot has to be good. On a four-hour search he flies at 800 to 1200 feet; then when he makes contact, he drops down to 50 or 100 feet—the lower the better—and flies a very tight pattern. He comes back to the ship for eight or 10 hours rest, then takes off again to continue the search.

"The pilot must be qualified to take off and land in all



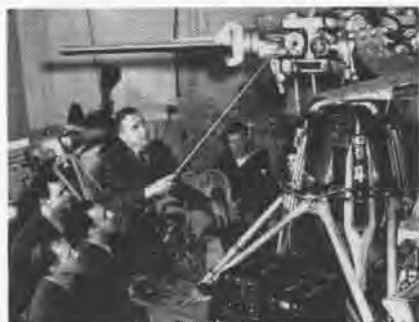
AIRCRAFT ARE LOADED AT QUONSET POINT



FASRON-TWO MECHANICS REPAIR ENGINE



VF(AW)-4 BANSHEE IS READY AT QUONSET



FAETU INSTRUCTOR EXPLAINS ASW 'COPTER



STRUCTURAL MECHS CHECK A JET FIGHTER



JETS, PROPS ARE MAINTAINED AT QUONSET



QUONSET ATHLETIC PROGRAM IS POPULAR



SEA LEGS ARE STRETCHED IN THIS SLIDE



REFLEXES GROW SHARP IN A SMOKER BOUT

kinds of poor weather, any hour of the day and regardless of the sea conditions. The copilot/navigator, the aircrewmembers who operate the ECM and MAD gear, must also be considered perfectionists."

At Quonset, he explained, the whole airplane crew can train as a team in a trainer that is realistic in every detail.

"The administrative, maintenance and supply help we get here permits us to give our undivided attention to fleet readiness," he concluded.

An HHS squadron officer voiced similar opinions. Uncertain deployment schedules and replacement crews that need refresher training are common to the helicopter squadrons as well as to the VS squadrons.

"We have 38 pilots to man 14 helicopters at sea. Each HSS has a pilot, a copilot, a first and second sonar operator. In a search situation the crew is alert from dawn to dusk. Aircraft are relieved on station, whether they are holding down a sub or flying screen with the destroyers.

"Mostly though, it's a matter of waiting, tense and alert, for the call to action." Then as an afterthought, he said, "the tensions and waiting are just like wartime."

The young officer's enthusiasm apparently is typical, and it results from much hard training. For that squadron, in its two-year existence, was rated outstanding on each of three inspections. The executive officer attributed much of the squadron's showing, and its fleet readiness, to the training and support provided by Quonset.

The commanding officer of FASRON Two was interviewed to learn in part what it was that made the squadron people so appreciative.

"We try to give the squadrons good service," he began. "We build up engines for the VS squadrons, run drop checks on their landing gear, and do maintenance on their avionics equipment. Sometimes we merely provide advice for the squadron mechs when they run into a problem that is beyond their capability. The Advanced Undersea Weapon Shop supplies the vital ordnance requirements for the ASW aircraft."

Capt. Thomas B. Payne, commanding officer of NAS QUONSET, and Capt. George D. M. Cunha, his executive officer, answered the \$64 question: Just what is it that gives Quonset its spirit, its morale, its will-to-do, that

is so evident in the hangars, on the tarmac, in the administration building, and even in the MAA shack.

"The spirit," began Capt. Cunha, "is instilled in part by tradition, but largely by a series of skippers who know what the fleet needs because they came here straight from commands in the operating fleet."

Before he expanded the statement, Capt. Payne explained that the basis for every decision at Quonset is simply: "What is best for the Fleet?"

"We deliberately subordinate the station to a background role, so the ships and squadrons can go to sea ready for action," he said.

Between them, the captain and the exec gave several examples to back up their statements.

"Not long ago," the captain began, "the *Wasp* came in on a quick turn-around. She needed avgas and supplies for a trip to Guantanamo Bay, Cuba. The ship was just out of overhaul and its refueling crew was green.

"The station supply officer rounded up five or six men around the base who were experts at refueling. They worked with the ship's crew and had the *Wasp* refueled and underway in a third of the time that had been estimated.

"As a matter of fact," said Capt. Cunha, "our military-civilian relations are one of our biggest assets. The civilians are just as anxious as we are to serve the fleet. There is absolutely no hint of an attitude that the base exists merely to give employment to 3000 civilian workers. We give our civilian employees a reasonable part of the load and expect them to pull their fair share. They really do."

The station, with its 124 officers, men and civilians, has no more voice on the joint recreation council than a helicopter squadron. Each casts one vote. The station commanding officer has final authority on the expenditure of welfare funds, but he rarely disapproves a recommendation made by the council. Several instances were cited wherein the fleet units were opposed to the station's wishes on a recreational venture, and the station bowed to the majority fleet vote.

This attitude follows through in the station's varsity athletic program. Station teams are comprised of players from fleet units as well as base personnel. On a given day, the ASW fleet might deploy suddenly, taking the star pitcher or quarterback, but the game is never cancelled.

Whether beans or bullets, maintenance or mail, recreation or readiness, all eyes ashore are trained on what is best for the fleet units. Club activities, hospital facilities, dependents housing and all other items must measure up to the same yardstick.

Finally, RAdm. Lester K. Rice, Commander Fleet Air Quonset, who also wears a shore-going hat as Commander Naval Air Bases First Naval District, summed it up in these words:

"More effort in terms of personnel, training, money, and equipment is expended by the Atlantic Fleet in pursuing the ASW problem than in any other area. A substantial portion of that effort is centered in the Quonset area.

"The American public is getting the best possible return for each defense dollar spent in terms of capable and competent crews for our ships and aircraft."



SIKORSKY HSS-1N HELICOPTER WILL GIVE THE FLEET AN UNPRECEDENTED POTENTIAL BY VIRTUE OF ITS NIGHT HOVER CAPABILITY



GRAMPAW PETTIBONE

Bellywhopper

A fighter pilot was scheduled for a gunnery hop in an FJ-4 at an overseas base. Preflight and taxi out were uneventful, but as he released the brakes for takeoff, the whole instrument panel fell in his lap. He aborted the takeoff and returned to the line where the panel fasteners were secured by a line-man. The pilot then continued with his hop, and normal routine prevailed until landing procedure began.

The pilot considered his approach to be a normal one, and flared over the end of the runway, GEAR UP. Two planes awaiting takeoff transmitted warnings. On the second warning, the pilot suddenly realized with a shock that they were warning *him*. He rammed it up to 100% but *too late*. The FJ settled in and skidded to a stop in a real belly-whopper.

While all this was going on, the wheels watch had noted the wheels-up condition while the FJ was in the groove. He turned on the red light and reached for his hand mike, which he dropped. As he stooped over to pick up the mike, his headset fell off. By this time, the FJ was sliding up the deck. Incidentally, the flares 1000 feet up the runway weren't used because the system was being worked on and not operable. The wheels-watch man was evidently too busy to fire his Very pistol.



Grampaw Pettibone Says:

Son, you had me worried! First of all, this just wasn't your day! If I was a fatalist, I'd say that someone had put a big old X on your forehead and only the proverbial luck of some Gaelic ancestors pulled you out of this one.

My achin' blood pressure just kills me when an airplane driver (as distinguished from a professional type Naval Aviator) sets one in gear up and locked, like a Midway gooney bird in a flat calm. In the first place you sure can tell that it ain't takin' as



Another!!
Bellywhopper!

much power to bring her up the groove as usual. That's a BAD SIGN and you should have got the message.

In the second place, you better "git with it" or your buddies are gonna start wanting you out front leading your division, where they can keep an eye on you.

That instrument panel detaching worries me. Your maintenance officer had better set himself up an inspection division composed of senior rates and insure that *all* work orders are signed off by a qualified inspector prior to putting a plane up for flight. Such incidents *can* be prevented.

Gear Shear

An A4D-1 Skyhawk doing night carrier qualification landings was fol-



Never
Again

lowing an F4D Skyray in the pattern. Because the Skyray was flying a very wide downwind leg and was long in the groove, the Skyhawk was forced to extend its downwind leg and to make a long straight-in approach.

Late in the approach the Skyhawk was a bit high after overcorrecting for a slightly low meatball on the mirror in the middle of his approach. The aircraft nosed over in an attempt to correct. As soon as the correction was started the Landing Signal Officer transmitted "no lower." The main landing gear and tail hook struck the round down about a foot below the flight deck level, collapsing both main gear. The Skyhawk slid forward on its two external fuel tanks and nose gear. The tail hook engaged the number one cross deck pendant for an arrested landing.

On the previous night's landings the same pilot went for the deck on two approaches, engaging the number one wire both times and blowing a tire on final landing. During debriefing he was cautioned against ignoring the meatball and making his own landings. Also it was emphasized that no large corrections should be made when at the ramp.



Grampaw Pettibone Says:

A high dive for the deck can break your neck just as sure as a high dive into a dry swimmin' hole.

This pilot allows as how the accident could have been prevented by flying the meatball in the center right down to the deck instead of letting it go low and then attempting to make a correction in close with resultant overcorrection. He'll swear by the LSO's advice, "Always fly the meatball in the center and you'll never go wrong."

Here's as good a place as any to quote the old saying, "Learn from the mistakes of others—you won't live long enough to make them all yourself. It's both safer—and cheaper."

Sure Cure

A two-year-old boy, the son of an officer attached to a base remote from hospital facilities, had accidentally swallowed a nickel.

With the coin stuck in his throat, an immediate emergency air evacuation by helicopter was authorized to transport the small boy, his parents, a doctor and corpsman to the nearest medical facility.

Because of the time factor the HR25 was not preflighted; however it had been checked following the previous flight that morning.

The helicopter's takeoff was normal, but as the pilot raised his landing gear, the rotor RPM became uncontrollable using the twist grip throttle.



Overhead throttles were used and control regained. As the pilot lowered the gear both the collective and cyclic control servos were affected by downward and backward pressures respectively.

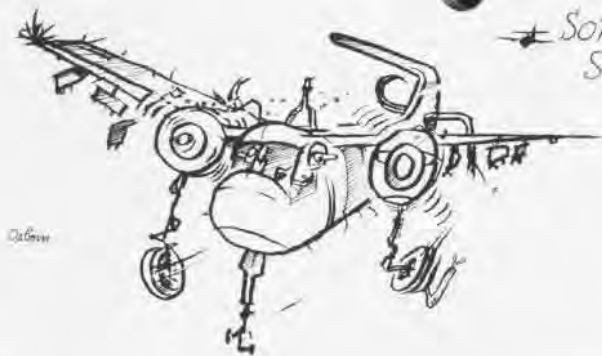
With both pilots working to control the plane, a semi-controlled hard forced landing was made through high tension wires into some bushes.

No injuries were sustained, and damage was minor, but the small patient aboard was *cured* as the nickel in his throat went down into his stomach. The trip was completed by station ambulance.



Grampaw Pettibone Says:

Both pilots in this whirlybird turned in a professional job of handling a low altitude emergency. What could have been a tragedy was turned into a routine emergency. It pays to know your aircraft thoroughly and, if you are riding as copilot, when to jump in with all available assistance to the pilot. Many accidents have been prevented by a good strong pilot/copilot team perfectly coordinated.



Some show!
Some don't!

Demonstration

It was a beautiful afternoon at an Air Force Base, and a large crowd had gathered for an approved flight demonstration.

An experienced Naval Aviator was scheduled for an FCLP simulation in an S2F-1 Tracker. After a short local flight, he joined the field pattern and reported in upwind over the runway at 500 feet for a left hand break. Contrary to an understanding reached only five minutes earlier by radio, the tower ordered a right hand break!

With no further argument the S2F pilot broke as directed, dropped hook, gear, then full flaps and went to full RPM. He set up his power and descended at 95 knots to the 180° position. At the 90 he had 150 feet and was in a gentle 15° right bank. At the 45 he saw he was overshooting the groove slightly, so he increased the angle of bank to about 25° and added a little power to somewhere around 25 inches. Lineup was good at an altitude of 50 to 75 feet, and the pilot stated that the attitude felt good although perhaps a trifle nose high. Airspeed was 80 to 90 knots, fluctuating due to turbulence near the ground.

He rolled in some aileron to raise the right wing to come out of the turn on final, but it wouldn't come up. A few seconds later the S2F stalled, struck the ground right wing first and then rocked onto the landing gear. It swerved left and headed directly for the static display and the awestruck crowd!

Realizing he might not be able to stop it in time, the pilot decided to take it around, poured the coal to the engines and took off over the crowd in a left wing down attitude. Immediately realizing that he had lost aileron control, by the use of offset power and full right rudder, he regained a

level flight attitude. After a difficult climb out into a clear area, an inspection of the S2F was made by a jet and the S2F crew was informed that the right wing was bent up at a 10° angle. By adjusting power, skidding turns, and some excellent airmanship, a slow right turn back to the airfield was made and a landing touchdown accomplished at about 120 knots.

On landing roll-out, a dragging brake on the right wheel gave him a 30° swerve to the right, but was corrected with hard left brake and rudder. As the plane was turned off onto the taxiway, the port engine died and something could be smelled burning. Pilot and copilot secured the engines and abandoned the aircraft. The pilot's words: "I had had enough for one day!"



Grampaw Pettibone Says:

Great Balls of Fire! Durned few airshows are approved in this modern day and age and then only when the most exacting requirements are met to insure safety of both the crowd and the participating pilots! A right hand pattern, besides being durned unconventional for an FCLP approach, meant you were pointed right at the crowd all through the turn on to final. Never fly a demonstration unless there's been a definite briefing beforehand. If it doesn't sound right, and in accord with Navy SOP's, DON'T FLY. It's far better to face a disappointed crowd than an outraged public after a disaster.

Second, you got a little slow, Bub, for a demonstration. After watching a bunch of supersonic jet jobs go boring by at slightly under Mach 1, if you'd come around at 95 to 100 knots, you'd have looked like you had stopped in midair to the crowd. The main thing is to display the technique.

NAVY MEETS THE LEBANON CRISIS



MARINES CARRYING BAZOOKAS UNLOAD FROM LCVP'S AT BEIRUT



LANDING CRAFT RENDEZVOUS AROUND CHILTON FOR INSTRUCTIONS



RACING IN AT RED BEACH, BEIRUT, AN ASSAULT WAVE OF THE THIRD BATTALION, SIXTH MARINES, COME IN ARMED AND READY



AD5W AIRCRAFT, ATTACHED TO VW-12, LANDS ABOARD USS WASP



HELICOPTERS AND S2F'S ON WASP COULD BE AIRBORNE IN MINUTES



SECRETARY GATES IS READY TO BE HIGHLINED FROM FLAGSHIP



SECRETARY MILNE WATCHES REPLENISHMENT AT SEA OPERATIONS

VIPS VISIT SIXTH FLEET

VADM. CHARLES R. BROWN, Commander Sixth Fleet, played host to distinguished visitors from Washington for three days at sea. Secretary of the Navy, Thomas S. Gates, Jr. and Deputy Assistant Secretary of Defense Cecil P. Milne went to the Med to witness replenishment and refueling exercises. RAdm. James W. Boundy, Chief of the Bureau of Supplies and Accounts, was one of the observers.



SECRETARY GATES, VADM. BROWN AND HIGH-RANKING OFFICERS TOUR FLIGHT DECK



AIRCRAFT LAUNCHINGS ARE WITNESSED



SECNV INSPECTS MARINE HONOR GUARD



FLAGSHIP PREPARES TO TAKE ON STORES



WITH ITS WING IN THE VERTICAL POSITION, VERTOL VTOL HOVERS IN HELICOPTER STYLE

TILT WING AIRCRAFT FLIES

COMPLETION of the first transition flight of a tilt-wing VTOL (vertical take-off and landing) research aircraft, Model 76, developed for the Army, has been successfully accomplished, according to the Department of the Army.

Developed by Vertol Aircraft Corporation of Morton, Pennsylvania, under contract with the Office of Naval Research, the Vertol model is the first tilt-wing aircraft to complete successfully the full transition cycle in free flight.

The Model 76 is part of the VTOL research program to develop a flying machine combining the high speed forward flight of the airplane with the vertical flight capabilities of the helicopter. The wing and rotor-propellers are tilted vertically for takeoff and horizontally for flight like a conventional aircraft.

Initial flight of the aircraft took place at Vertol's test facilities in Philadelphia, Pennsylvania, when it took off in a hover and flew through transition to forward flight for the length of a 7,500-foot runway before returning to hover for landing.

The flight was preceded by extensive model tests by the laboratories of NACA and the Forrestal Research Center, Princeton University.

For the past several years the Office of Naval Research has conducted studies of the feasibility of vertical take-off and landing aircraft. The successful flight of the VTOL Model

76 research aircraft is a result of these studies.

The Army's VTOL research program is part of the whole research effort to develop new and advanced types of aircraft capable of operating from short landing fields or small cleared spaces.

Navy Honors Dr. Hunsaker SecNav Presents Service Award

Dr. Jerome C. Hunsaker, Professor Emeritus, Massachusetts Institute of Technology, was honored July 28 when Thomas S. Gates, Jr., Secretary of the Navy, presented to him the Navy's Distinguished Public Service Award. The ceremony took place at the Army-Navy Club, Washington, D. C.

The citation read in part: "For his outstanding contributions to the Department of the Navy in the fields of scientific research and development, Dr. Hunsaker has devoted much of the 50 years since graduating from the Naval Academy to service for the Navy, and has been a creative pioneer in every scientific and technological phase in Naval Aviation since its inception. As first coordinator of Research and Development for Navy, he established the organization and method of operation for this vital forerunner of the Office of Naval Research and he took an active and influential role in shaping the organiza-

tion of the Bureau of Aeronautics.

"As a member of the Naval Research Advisory Committee since 1953, Dr. Hunsaker has been a most valued consultant to the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Research. . . . His distinguished careers as Naval Officer, Scientist, Educator, Administrator have each added to the effectiveness and prestige of the Navy and strength of the Nation."

Dr. Hunsaker, at MIT, instituted and taught the first formal academic aeronautic course in the United States.



ADM. ARLEIGH BURKE administers commissioning oath to ENS. A. A. Tingle via closed circuit TV. Formerly a CPO, Mr. Tingle gives CNO and staff TV weather briefings from Navy Hydrographic Office.

San Clemente to Expand Air Strip to be Finished in 1960

The second phase of work on the Navy's missile training base, the Naval Air Facility at San Clemente Island, is scheduled for an early start with the closing of contractors' bids. Cost of the second construction phase is expected to be between six and eight million dollars.

Firing tests of the *Polaris* missile were made at San Clemente. Some eight million cubic yards of earth had been moved when the site development phase was completed in August. Work started in June, 1957.

The air strip portion (9300 by 200 feet, plus taxiways) is expected to be complete about January 1960.

The facility's mission will be to provide services to permit staging of aircraft for air missile firings, drone launch and recovery, overwater range and out-of-sight drone control and it will be used as an emergency field.

82,000 FEET IN A BALLOON

NAVY balloonists have really done it again!

Cdr. Malcolm D. Ross, USNR, and LCdr. M. Lee Lewis, USN (Ret.), well known Navy team on balloon flights in previous years and Harmon Trophy winners for their exploits in 1956, have scaled the heights again, and turned in another record, the longest flight into the stratosphere. They were balloon-borne for a total of 34½ hours, two hours longer than the endurance record set in the fall of 1957 by LCol. David Simmons, USAF balloonist.

Cdr. Ross is a civilian scientist with the Office of Naval Research, and LCdr. Lewis is head of balloon flight operations for Winzen Research Inc., Minneapolis, Minnesota.

The balloonists were launched in an



ROSS, BARR, AND LEWIS BEFORE FLIGHT

enclosed gondola from an open pit iron mine near Crosby, Minnesota, at 0542 (EDT) July 26. They reached a top altitude of 82,000 feet. Just 34 hours, 29 minutes later, they bounced to earth on barren ranch land near Jamestown, North Dakota.

The primary purpose of the flight was to test and evaluate the sealed cabin system which is to be used with a relatively large externally mounted telescope in November to observe the atmosphere of Mars. Thus the flight was really an operational and logistic rehearsal for that coming event.

On the flight July 26, the balloonists



A PLASTIC BALLOON WHICH CARRIED ROSS AND LEWIS TO 82,000 FEET IS INFLATED

carried a small television camera which they used to transmit views from the gondola and to show their activities within the gondola. A television screen located in the Winzen research headquarters in Minneapolis received the first live TV pictures transmitted back to earth from the inner fringe of space where approximately 98% of the earth's atmosphere was below the gondola.

As on other *Stratolab* flights, a Naval Medical Research Institute team, headed by Capt. Norman L. Barr, MC, USN, tracked the balloon flight with an aircraft equipped as a flying aeromedical laboratory as well as with radio-equipped ground vehicles. Capt. Barr and his assistants recorded the effects of high altitude flight on the stratosphere explorers.

The plastic balloon Ross and Lewis used carried 5500 pounds of equipment, compared with 5000 pounds carried on previous flights. The gondola was successfully maintained at sea level pressure throughout the flight.

The balloonists watched an electrical storm some 15,000 or 20,000 feet below them. Lewis later declared it was unbelievably spectacular.

Their landing was rough, and Ross was slightly bruised on his forehead

in the shake-up. The gondola came down, bounced, and then the balloon started taking them up again when the firing device failed to release the gondola.

As they started up, the two men thought of parachuting out, but decided against it in favor of another try at landing. This time they succeeded in getting the gondola released and made a safe landing.

Ross and Lewis carried with them some 10,000 insects, put aboard by the Department of Agriculture to obtain preliminary data on exposure to the stratospheric environment. More along these lines of research is scheduled for the November flight.

Because the gondola was equipped with what is called "full atmosphere," the men did not have to be burdened with their space helmets. They ate sandwiches, drank coffee and water, and took only one nap.

Chief Pilot Ross is ready to go again, and so, of course, is Co-Pilot Lewis.

● A tiny new air turbine to cool supersonic aircraft cabins is so small that it can be held in one hand, yet it has the cooling capacity of a ton of ice per day.

● Each pilot of Navy Attack Squadron 56 has won a Navy "E" for bombing excellence.



RED DEVIL WAS USED BY VB-4M IN MID-THIRTIES ON F4B-4'S

TODAY VMF-232 RED DEVILS FLY 24 SWEEP-WING FJ-4 FURIES

RED DEVILS GIVE 'EM HELL

SWEEP-WINGS glinting in the sun, "Whisky Tango 16," an FJ-4 Fury jet, piloted by 1st Lt. Donald Macauley, touched down on Kaneohe Bay's main runway. The Red Devils of Marine Fighter Squadron 232 claimed another first!

The landing marked 10,000 hours of flight time in the FJ-4 during FY 1958. VMF-232, commanded by LCol. Jay W. Hubbard, stated it was the first Marine squadron to perform such honors in that aircraft.

Col. Paul J. Fontana, Marine Aircraft Group-13 commanding officer, and squadron personnel greeted the pilot upon his return to the flight line. Ground crewmen then dunked Lt. Macauley and his plane captain, Pfc. James T. Gillis, in the drink to commemorate the event.

Equipped with 24 swept-wing, sin-



gle-engine, high altitude, North American-built Furies, VMF-232 pilots flew over 7000 sorties and logged more than 7400 landings during the past fiscal year. They traveled the equivalent of more than eight round-trips to the moon, or 160 trips around the equator.

The squadron participated in 22

exercises, and 133 pilots were checked out in the FJ-4 without incident. Missions included air-to-air missile firing and gunnery, air defense interceptor scrambles, reconnaissance, navigation and instrument flights, close air support, night ground controlled intercept, combat tactics, field carrier landing practice and carrier qualifications.

During carquals aboard the USS *Bennington*, the squadron made 163 touchdowns in one day to claim a new jet arrestment record for the CVA-20. First Lt. Leo Carelli scored the 48,000th landing and the 10,000th launch from the carrier's starboard catapult. The pilots chalked up a total of 234 arrested landings.

The FJ-4's received top maintenance during fiscal 58. Shop and line crews devoted over 250,000 spe-



VMF-232 MECHS GIVE J65 JET POWERPLANT PERFORMANCE CHECK



FURIES PROVIDE AIR SUPPORT FOR THE 4TH MARINES IN EXERCISE

cialized hours keeping the engines, airframes, armament and electronic components in operational condition. Routine 60 and 120-hour checks were made by night crews under the direction of Maj. William C. McGraw, squadron engineering officer. First Sgt. Ernie O'Neal, VMF-232 sergeant major; MSgt. Charles Strauss, maintenance chief; TSgt. G. R. Muncy, ordnance chief; TSgt. L. J. Still, electronics chief; SSgt. R. C. Bierman, line chief and other shop NCO's contributed substantially to the record pace set by the *Red Devil* squadron.

the aggressive flying devil as a symbol of their fighting mission. The *Red Devil* has adorned Marine Corps aircraft for over a quarter of a century. It was originally designed for and used by VF-10M in 1930. The squadron became VMSB-232 in 1941. Despite numerous changes in designation in the interim, it continued to use the same insignie.

When the Japanese struck at Pearl Harbor, 20 squadron SBD's were lined up on the field. Twenty-five minutes later, nine were completely destroyed and 10 were so badly damaged

end of the war found the *Red Devils* with two Presidential Unit Citations.

VMTB-232 was decommissioned in November 1945, but was activated as Marine Reserve Fighter Squadron 232 at NAS NEW YORK in June 1948. The Weekend Warrior unit was ordered to active duty in September 1950, shortly after the outbreak of the Korean conflict. At the same time, it was moved to El Toro.

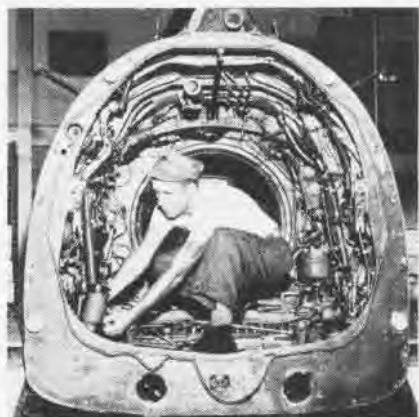
During the next three years, VMF-232 trained many combat-ready pilots for duty in Korea. The California base remained home port until Jan-



SGTS. NELSON, CAREY OVERHAUL ENGINE



MACAULEY LOGGED YEAR'S 10,000TH HR.



SSGT. KOPP REPLACES OIL EXHAUST PIPE



INSIGNE GETS TOUCH-UP BY CPL. MARTIN



SSGT. R. TERWILLIGER INSPECTS CANNON



CAPT. L. H. ABRAMS BRIEFS HIS FLIGHT

One of the highlights for the squadron during the 12-month period was the 1958 Naval Air Weapons Meet at El Centro. VMF-232 placed second in the air-to-air gunnery competition. The flight team and maintenance crew brought back to K-Bay two trophies and four titles, including a new Fleet Air Gunnery Unit fire-out record of 97.7%.

High performance is traditional with Marine squadrons who have used

they required major overhaul to become operable. VMSB-232 remembered December 7th a long time.

Throughout WW II the Marine squadron distinguished itself in the Pacific Theatre. It was the first Marine divebomber outfit to see combat—in August 1942. The following year it was redesignated VMTB-232. Flying SBD's and TBF's, it participated in the campaigns at Bougainville, Rabaul, the Marshalls, Okinawa. The

uary 1954 when it was changed to MCAS KANEHOE BAY, Hawaii.

The flying red devil has seen duty on many types of aircraft. It has appeared on Boeing single-seaters, F6C-4's, F4B-4's, SBD's, TBF's, F6F's, FH-1's, F4U's, F9F-2's, and FJ-4's.

The most recent insignie, approved by CNO in June 1958, shows a squatter, more sturdily shod *Red Devil*, than earlier versions. But it symbolizes the very same fiery fighting spirit.

SHIP RUNS COLD TV SHOW AF Cadets Observe Navy Air, Sea, Marine Strength Shown



STURDY ICEBREAKER GOES THROUGH EASILY

THE USE of television for ice reconnaissance was tested by the Navy for the first time during summer Arctic operations performed by the Military Sea Transportation Service.

A TV camera was mounted in a U. S. Navy helicopter and two receivers set up aboard the icebreaker USS *Glacier* (AGB-4) to mark the first use of television for ice reconnaissance. The test took place in the Davis Straits enroute to Thule, Greenland.

Developed by Navy and Philco Corporation engineers, the airborne camera took pictures of the ice formation ahead. Aboard ship one receiver gave the ship's observation officer an on-the-spot view of the distant ice and another receiver in the Combat Information Center presented the same picture alongside the radar plot of the copter's position.

In all previous ice reconnaissance by helicopter, an ice observer reported ice conditions below him and ahead of the ship by radio. Charts were made with notations for later study by the ship's observation officer. The value of verbal descriptions and later briefings after the copter's return was dependent upon the observer's ability to describe what he saw. With the television picture before him, the ship's observation officer was able to make a constant evaluation of conditions ahead as the ship continued on its course.

A clear picture, independent of verbal directions, enabled the ship to proceed more rapidly and safely, thereby saving precious time, a vital element in Arctic operations where the shipping season is very short.

Further development and applica-

tion of TV for ice reconnaissance will depend upon final evaluation of the results of the tests conducted aboard the USS *Glacier*.

The USS *Glacier*, the Navy's largest and newest icebreaker, veteran of three *Deep Freeze* Operations in the Antarctic and slated for another this winter, was in the Arctic for the first time this summer. She was conducting ice reconnaissance and providing escort for cargo ships in the 1958 sea lift to Arctic defense installations.

More than 400 cadets from the U. S. Air Force Academy received six days of instruction in naval warfare subjects at Norfolk Naval installations and in Atlantic Fleet ships.

Training included a one-day cruise aboard USS *Ranger* as well as a tour of cruisers, destroyers and submarines. In addition, the cadets saw patrol, jet, and antisubmarine aircraft.

They also observed a full-scale amphibious assault landing by seasoned Marine troops during their visit.



'SEACOPTER' GOES through its paces at NATC Patuxent River. The Navy's first bull type amphibious helicopter completes a low speed water landing, top picture, during hydromatic evaluation tests. Second photo shows the seacopter rising from the seaplane basin after the demonstration. A standard Vertol HUP-2 was modified by the EDO Corporation to include a reinforced hull bottom, all-metal outrigger floats, and a re-ducted engine cooling air system.

BuAer Librarian Honored Served Government for 40 Years

Mrs. Chellie R. Penny, Head Librarian in the Bureau of Aeronautics, has received a gold anchor pin and a letter of special commendation from the Secretary of the Navy, in recognition of 40 years in federal service, RAdm. R. E. Dixon, Chief of BUAER, officiated at the ceremony.

Mrs. Penny came to the Bureau of Aeronautics in 1924, after six years with the War Department. She was given responsibility for the technical books and pamphlets used by staff scientists and engineers.

BUAER was then but three years old. Its first appropriation for the purchase of books for a technical library was \$100. The sum has grown to about \$13,000 annually and, today, the library services over 15,000 books and hundreds of periodicals.

The organization and success of the library was credited to Mrs. Penny in October 1948 when she was given a superior accomplishment award. In April 1951 RAdm. A. M. Pride presented her with the Meritorious Civilian Service Award for outstanding and loyal service over the previous 24 years. She has also received letters of special commendation for help in the organization of the David Taylor Model Basin technical library and for her work in connection with BUAER library's 37th anniversary.

Mrs. Penny has known every Chief of the Bureau and a host of other high-ranking officers and civilians who have made the Bureau of Aeronautics famous for development and design.

VMA-332 Joins 2nd Wing Squadron Will Fly A4D-2 Skyhawks

Marine Attack Squadron 332 has been designated as a unit of the Second Marine Aircraft Wing at MCAS CHERRY POINT after an administrative transfer from the First Wing in Japan.

The new MAG-24 squadron is commanded by Lt. Col. J. D. Mass. Maj. R. J. Elledge is executive officer.

Currently in a pre-operational, forming stage, the squadron has not yet set up a firm training schedule. The squadron is scheduled to receive Douglas A4D-2 *Skyhawk* aircraft.

VMA-332's mission will be close air-ground support of combat infantrymen.



VICE ADMIRAL FLATLEY RECEIVED AWARD

Yorktowners Award Made Bowl Presented to VAdm. Flatley

The USS *Yorktown* (CVA-10) Association, during its 11th reunion in New York City, presented its annual award to the late VAdm. James H. Flatley, Jr.

Unable to attend the ceremony because of serious illness at the time, Adm. Flatley listened to the formal presentation by means of a telephone hook-up at his quarters.

In making the award, an inscribed silver Paul Revere bowl, James T. Brynn, Secretary-Treasurer of the Association, said:

"We are honoring Jimmy for all the intangible traits and characteristics which have put him at the very top in the eyes and hearts of every officer and enlisted man who has ever served with him during his naval career.

"His superb leadership, courage, humility, and modesty; his ability and achievement in his profession; his capacity to handle the most difficult assignments; his great religious faith; his understanding; and above all, his friendliness towards everyone, irrespective of whether the individual was a five star admiral or a seaman, 2nd class."

VAdm. Flatley, who was Director, Air Warfare Division (CNO), died at Bethesda Naval Hospital 9 July 1958.

VA-63 Adopts PPM System Greater Availability Is Result

Attack Squadron 63 at NAS ALAMEDA has adopted a Planned Progressive Maintenance (PPM) system to keep its FJ-4B *Furies* flying more ef-

ficiently. The system was inaugurated after Cdr. W. C. Chapman, CO, and LCdr. J. B. Dunn, XO of the "Fighting Red Cocks" squadron observed the system in effect at another activity.

Under PPM, various components and systems are inspected periodically as an aircraft flies through a cycle of 60 or 120 hours. For the *Fury*, scheduled maintenance is performed on some section of the plane every four flight hours.

By the time 60 flight hours have been accumulated on the airframe or engine, the complete periodic inspection requirements are complete.

Items to be inspected at a given four-hour period are located in the same general section of the aircraft to eliminate the need for opening all access areas in the airframe.

The five-hour leeway period normally allowed on a 60-hour check has been incorporated into PPM so that this leeway is allowable on each item listed in the check sheets. This permits great maintenance flexibility and provides a broad basis for maintenance.

It is anticipated that Planned Progressive Maintenance will show up even better at sea than it has shore-based, resulting chiefly in more liberty for the maintenance department during the first days in port which have in the past been customarily devoted to catching up on 60-hour checks. Previously, scheduled maintenance on fighter or attack aircraft has been performed periodically after completion of 60 to 120 flight hours.

The scheduled maintenance work load thus varied greatly from almost none with no aircraft "in check," to unacceptable extremes with a number of the squadron's 12 aircraft in check. Availability often suffered since planes in check remained down at least a day or two before the scheduled maintenance could be completed.

Refueling Record Claimed Shangri-La, Kawishiwi Boast Mark

USS *Shangri-La* and USS *Kawishiwi* claim to have set a new Seventh Fleet refueling record. The two ships transferred fuel oil at the rate of 7655 barrels per hour in a refueling during *Operation Knockout* off the coast of the Philippines.

The feat surpassed the record of 7488 barrels per hour set by the *Hancock* and the USS *Kawishiwi* last May.



ROCKET-FIRING USS CARRONADE UNLOADS FIVE-INCH ROCKETS

PACIFIC POWER ON PARADE



A3D SKYWARRIORS FLANKED ON BOTH SIDES BY A4D SKYHAWKS LEAVE SMOKE TRAILS AS THEY SWEEP SKIES AT HIGH SPEED



PROPELLER DRIVEN SKYRAIDERS SLAM NAPALM BOMBS ON TARGET

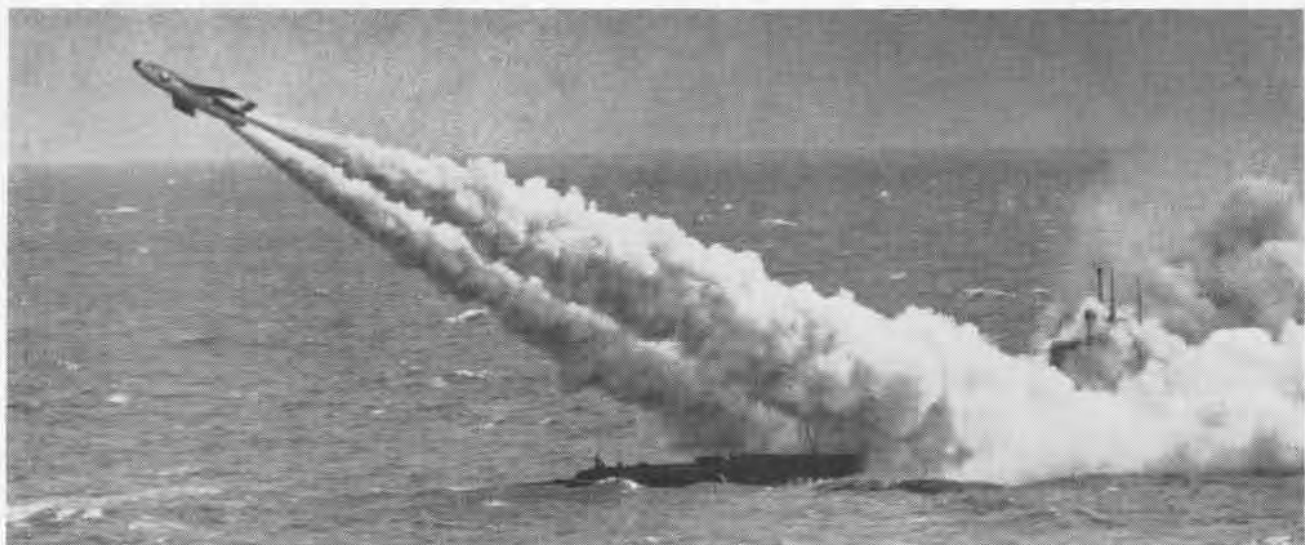
U. S. Pacific power was demonstrated when 29 top military leaders from seven Asian nations observed a three-day weapons demonstration aboard the Shangri-La in the Pacific.

United States elements participating in the demonstration included Carrier Air Groups 11 and 15; Carriers Shangri-La, Hancock, and Philippine Sea; Cruisers St. Paul and Toledo; Carronade (IFS-1); Destroyers Cunningham, Evans, Blue, Kidd, Agerholm, Anderson and Uhlman; Submarines Rasher and Tunny; Supply Ship Pollux, and fleet tanker Kawishiwi.

Main attractions were a Sidewinder missile shot at a F6F target drone, a Regulus missile shot from the Submarine Tunny, main battery



THE EXPLOSIVE POWER OF A DEPTH CHARGE THROWS TONS OF WATER SKYWARD AFT USS KIDD (DD-661) DURING ANTI-SUBMARINE DRILL



THE SUBMARINE USS TUNNY FIRES HER 500 MILE RANGE GUIDED MISSILE, REGULUS I, DURING SPECIAL DEMONSTRATION MANEUVERS

firing from the St. Paul and her accompanying destroyers, and an air show. Other events included coordinated air attacks and various weapons deliveries, submarine and antisubmarine warfare demonstrations, an exhibit of firepower by the rocket-armed Carronade, in-flight refueling of aircraft and helicopter rescue.

Senior Naval officers aboard the Shangri-La and Hancock were Admiral Harry D. Felt, Adm. Felix B. Stump and VAdm. W. M. Beakley. Other services sent observers.

The far flung program of mutual defense is illustrated by such an exercise as 'Ocean Link' (pp. 20-21) which linked the power of the U. S. Navy with that of its SEATO Allies in the Pacific.



MARINES' TANK-KILLER, THE 'ONTOS,' DEMONSTRATES FIREPOWER



S2F TRACKER IS LAUNCHED FROM DECK OF USS PHILIPPINE SEA



AUSTRALIAN FAIREY-DELTA GANNET ASW PLANE ABOARD PHILSEA



TRACKER FROM PHILSEA MAKES RUN ON USS RASHER'S PERISCOPE

OPERATION

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Two dozen ships from five SEATO nations. For eight days the allied fleet units rehearse their collective security. Australia sent the Royalist; New Zealand came the Khaiba; the United Kingdom included the Bulwark, Newfoundland and the pine Sea, several destroyers, the Floyd

OCEANLINK



assembled in Singapore for Exercise Oceanlink. Roles they might some day play in defense of Melbourne, Coyager and Warramunga; from represented Pakistan; United Kingdom ships in-ossack. American ships included the Philip-ay, (AVP-40), the Kawishiwi and two subs.

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40-MM GUN CREW UNLIMBERS MOUNT DURING ANTI-AIRCRAFT DRILL



MARINES EXPLAIN CATAPULT TO GROUP OF 2ND GHURKA RIFLEMEN

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OFFICERS OF HMS BULWARK ON FLIGHT DECK OF PHILIPPINE SEA

HIGH WINGS BACK IN STYLE

By Harold Andrews
Airframe Design Division, BuAer



CRUSADER'S HIGH-WING DESIGN WAS NECESSARY TO GET VARIABLE INCIDENCE WING

THE NAVY'S Chance Vought *Crusader* has received many laurels for its 'firsts' as a carrier-based fighter. It has brought new capabilities to our fleet fighter squadrons and its performance has brought honors to Naval aviation. However, little notice has been given to one of its principal configuration 'firsts.' It is the first *high wing* fighter to see service in a U.S. carrier squadron.

Prior to the F8U-1, "low-" or "mid-" were the only adjectives that seemed to properly precede "wing" in recognition descriptions of operational Navy fighters. "High wing" belonged to light planes, or at best, transports or bombers.

Several high-wing fighters were designed, but each had some feature *other than its high wing*, that failed to meet acceptance standards.

The first group to be built were designed in the 1929-34 period. At that time the cantilever wing was not yet the accepted standard for combat aircraft and the high-wing design was structurally much more satisfactory with its strut-braced configuration.

The Boeing XF5B-1 was a parasol

wing, strut-braced design developed from the earlier F4B-1 biplane design. Its all-metal construction proved to be considerably heavier than the early F4B series airplanes, so its performance offered no new advantages. However, the all-metal fuselage and revised tail surfaces developed for the XF5B-1 were incorporated in the later very successful F4B-3 and F4B-4 biplanes.

The late Curtiss Aeroplane and Motor Company was responsible for



F8U CRUSADER IN LANDING CONFIGURATION

the next two basic designs, the XF12C-1 and the XF13C series. The former was a two place parasol monoplane; the latter a high-wing single place cabin design in its XF13C-1 and XF13C-3 configurations. Both used

strut-braced wings. The XF12C-1 was redesignated the XSBC-1 after review of the two-place fighter concept. It was replaced by a biplane design before production began.

The XF13C-1, which featured slats and flaps to bring its landing speed down to that of contemporary biplanes, was considered to be a very satisfactory airplane in all respects. It was tested aboard the old *Saratoga* for a short period. Squadron pilots greeted it with considerable enthusiasm in spite of its novel design, which placed the pilot in a cabin more similar to that of a *Monocoupe* than that of a fighter. But, the Grumman F2F-1 and its F3F successors won out and the arrival of the monoplane fighter in the Navy's carrier squadron was delayed a few more years.

With the advent of the cantilever wing, the advantages of the low and mid-wing designs with respect to such items as landing gear location, pilot visibility, and accessibility of wing-located armament dictated these con-



XF10F-1 WAS FIRST HIGH-WING NAVY JET

figurations through World War II and into the jet age.

Significantly, except for the earlier transition to monoplane fighters in the old Army Air Corps, the same pattern was followed.

In some of the European countries, notably France and Poland, the high wing monoplane did find favor as a fighter configuration. In fact, all the way back into the World War I period those monoplane fighters which became operational were generally high wing designs.

Perhaps the most popularly known

aircraft in this category was the parasol wing Fokker D-8 which appeared in 1918 with a cantilever wing.

Poland designed a series of gull wing fighters which formed the first line fighter strength of her air force right up to the WW II period. One such fighter, pictured at right, appeared at the Cleveland Air Races in 1931.

In France the parasol wing design was favored and a number of different designs with this configuration saw service from the late twenties through the mid thirties. These aircraft had performance characteristics which were directly comparable with the biplane and early low wing monoplane fighters forming the equipment of other air forces during their period of service.



IN XF13C, CABIN REPLACED OPEN COCKPIT

The WW II period, and the beginning of the jet period in Naval aviation which followed WW II, established low and mid-wing designs as the fighter configurations. With lessons of early Navy jet fighters digested and discrepancies found, and with the ever-present demand for higher speeds considered, the stage was set for reintroduction of high wing fighters.

In 1948 Grumman was proceeding with the preliminary design of a fighter to succeed the then-new F9F-2. After the initial design had been established, several factors led to a completely new model.

Fuel capacity had to be greatly increased to provide more time in the air. Aerodynamic advances dictated thinner wings with sweepback for transonic speeds rather than the relatively thick delta wings which were then being investigated.

Increased electronic equipment was also found necessary as the performance of the aircraft was improved.

With the increased weight and decreased maximum lift capability represented by the items, a variable sweep

wing was chosen to allow a straight wing configuration for low speed operations aboard carriers.

This feature largely dictated the high-wing configuration to provide wing support and wing fold assemblies while allowing for fuel cells and engine inlet ducts in the same fuselage area.

Advanced solutions to other problems were also incorporated in the XF10F-1 during its design development. Manual elevator control systems were being found inadequate as mach



POLISH 1931 FIGHTER HAD A GULL WING

numbers increased and the then-new power control systems were responsible for many design and service difficulties in the XF10F-1.

Therefore a system was developed whereby the pilot's stick mechanically operated a small surface on a boom attached to the all-movable horizontal tail surface. This in turn aerodynamically moved the surface, providing longitudinal control at transonic speeds without excessive pilot forces. Spoilers for lateral control were also a new feature.

Unfortunately, the many advanced features of the XF10F-1 involved new

problems, and solution of these problems delayed its production until newer types were in sight. Production of the XF10F-1 was cancelled.

Again in the case of XF8U-1, experience with earlier carrier jet fighters dictated a novel configuration feature which led to a high-wing design. While various aerodynamic layouts were investigated quite extensively by Chance Vought engineers in the wind tunnels of the United Aircraft Research laboratory in East Hartford, Connecticut, all of the potential XF8U-1 designs featured a variable incidence wing.

Practical structural design places such a feature on top of the fuselage.

Experience with the F7U series led Chance Vought engineers to the conclusion that the high nose-up attitude required for carrier landings dictated a canopy which extended above the fuselage line to provide adequate pilot visibility. This in turn added a drag increment which could not be tolerated in a supersonic fighter.

The variable incidence wing reduced drag in the high speed configuration, and provided a reduced fuselage angle in approach and landing, which allowed a shorter nose landing gear as well as a more comfortable attitude for the pilot under these conditions.

Incorporating all the latest concepts in aerodynamic and structural design, the designers of the F8U-1 still avoided a multiplicity of novel features and development went ahead closely on schedule. The *Crusader* provided a boost to our fleet capability while proving that a high-wing carrier fighter can prove a superior design.



ALL-METAL, STRUT-BRACED, PARASOL-WING BOEING XF5B-1 POSED WEIGHT PROBLEM

JET AGE 'DITCHING SENSE'

*Troops, as I change from an
air to a sea command
I would like to say glub glub*



Wait 'til she stops—but no speeches!

You should come out



*as smoothly
as a cartridge!*

THE HEADY reputation enjoyed by a long line of illustrious Sense Pamphlets won't suffer with the addition of their newest pamphlet in the series. Its name is *Ditching Sense*, and it is issued by the Aviation Training Division of the Office of the Chief of Naval Operations. Its official identification is NAVAER 00-80Q-30.

Recognizing the fact that a pilot may not be able to use his "shoot seat," the writer presents two situations, appropriately labeled the "Quick Splasher," and the "Split Seconder." These are thoroughly examined.

In the case of the "Splasher," some

classic actual incidents of survival in the face of some deep and wet odds are reshaped as object lessons.

Ditching Sense points up the need in the second situation, that of the "Splitter," for making a rapid decision and a right one while there's still time to make oneself available for an AAR statement. The value of a knowledgeable wingman is also aptly described and drawn in detail.

The pamphlet concludes with some observations on night ditching and a general comment:

"There's some luck in this business of ditching, of course. Your approach

to make sure you need as little as possible. Forethought will help bring you through. Knowledge of survival procedure provides a better guarantee than a rabbit's foot of saving a neck."

Squadron Safety Officers are enjoined to note that a healthy portion of this knowledge can be gained by perusing *Ditching Sense*. It not only makes good reading, but good sense.

Polaris Plant to Expand Construction Begins at Sunnyvale

The Lockheed Missile Systems Division has been authorized to begin construction of an addition to the Navy-owned *Polaris* development facility, Sunnyvale, California.

Site preparation for the multi-million-dollar construction job is already in progress. The addition now under construction will provide a manufacturing capability to be available when the *Polaris* research and development phase is completed.

"The building and its future occupancy are designed to furnish the closest integration of *Polaris* weapon system management, technical skill, testing skill, and manufacturing skill, so that the core of the *Polaris* effort will be unhampered by the requirements of any other projects," said L. Eugene Root, general manager of the Lockheed Missile Systems Division.

Until the first segment of the new building is finished, Lockheed's *Polaris* missile system management, engineering and research personnel, and Naval Inspector of Ordnance will continue to be housed in present company buildings at the Sunnyvale plant.

VMF-334 Gets an AF Pilot Exchange Pilot to Serve 1½ Years

First Lt. William P. Lemmond has become the first Air Force pilot to be assigned to Marine Fighter Squadron 334. He will serve an 18-month tour with the Marine *Crusader* squadron.

Lt. Lemmond was selected for exchange duty under the Navy-Air Force exchange agreement which permits 25 tactical pilots from the Air Force, Navy and Marine Corps to serve with their sister services.

The program is designed to acquaint the exchange officers with operational procedures of other services, so they will have a better knowledge and understanding of service missions.

Double check me!



ABLE DOGS TO ALPHA DELTAS



SKIPPER AND EXEC DO A ROUTINE CROSS-COUNTRY FLIGHT CHECK



AVIATION STOREKEEPERS ORDER FLIGHT GEAR FROM ASO CATALOG

ATTACK SQUADRON 115's history is long and colorful. A direct descendant of the renowned Torpedo Squadron Eleven of WW II fame, it was, according to the squadron, the first to deploy from the San Diego area with the AD *Skyraider*.

VA-115 received *Skyraiders* for check-out and familiarization in late 1948. By 20 December the change from TBM to AD was complete. The squadron went aboard the *Valley Forge* for carquals and the following month completed operational readiness inspection with a grade of excellent.

The AD-4 replaced the AD-2 in 1950. In the summer of that year VA-115 deployed aboard USS *Philippine Sea*, with 16 aircraft and 24 pilots. Destination, Korea! Initial missions in-

cluded attacks on communication and supply lines. Improved tactics were devised to meet new situations. With weapons ranging from 20 mm cannons to 2000 lb. bombs, heavy damage was inflicted on the enemy. The squadron returned to the United States in April 1951 after a most effective cruise. The aircraft had proved itself emphatically in combat.

The veteran planes and pilots went back to Korea in February 1952, again as part of Air Group 11. As a parting shot, they participated in the maximum effort strikes on the Suicho Hydro-Electric Power Plants.

Today VA-115, flying AD-5's, 6's and 7's, is one of the very few remaining prop squadrons home-based at NAS MIRAMAR. The impressive history

brings a sharp awareness of the continuing importance of the *Skyraider*. Its slower speed makes it capable of all types of close air support. It is capable of carrying a heavier payload than most of its jet cousins. This includes anything from 20 mm. cannons to nuclear weapons. Furthermore, the AD can stay in the air without refueling for long periods. Unlike jets, it can stay at low altitudes for a considerable length of time without suffering the effects of excessive fuel consumption. It can also be used as a tanker.

LCdr. R. L. Bothwell took over as commanding officer in June 1958 after serving as exec to Cdr. L. E. Kirk. Intensive training and deployments, high morale, and good performance make VA-115 ready for tomorrow!



SKYRAIDER GETS WASHED AND POLISHED



VA-115 MECHS MAKE ENGINE ADJUSTMENT



GOOD MAINTENANCE MEANS GOOD FLYING

NAVAL AIR RESERVE ROUND-UP



FULL-SIZED vertical take-off Pogo, located within sight of main gate at NAS Los Alamitos, draws attention to Information Center.



HU-711 happily accepts Staples Trophy. On hand were Cdr. Miles, past CO LCdr. G. Bierborst, Leading Chief C. Walker, Capt. Staples.

Los Alamitos Holds Review

The Annual Military Inspection and Review at NAS LOS ALAMITOS is now history. It was presented in the traditional, colorful military manner. Los Alamitos facilities, squadrons and personnel, commanded by Capt. C. L. Westhofen, were viewed by RAdm. H. H. Caldwell, Chief of Naval Air Reserve Training, BGen. F. C. Croft, Commander Marine Air Reserve Training, and their staffs.

The morning review of station personnel and Marine units preceded the

inspection of 4,000 naval reserve officers and men in dress uniform. The ceremonies presented a stirring sight.

The LosAl reservists witnessed the presentation of the Willard I. Staples Trophy for superior enlisted performance to HU-771, commanded by Cdr. Don Miles. It is awarded on the basis of enlisted attendance, advancement and military bearing. Capt. Staples (Ret.), the donor of the trophy, was present, for the occasion.

Lensmen Elect Photo Mate

During the annual elections of the Memphis Professional Photographers Assn., Robert J. Costello, PH1, attached to NARTU MEMPHIS, had the distinction of being the first service man on full-time active duty to be elected to serve a one-year term as President of the Civilian "lensmen" group. Last April he was elected Treasurer of the Tennessee State Professional Photographers Association, another unusual honor.

A Navy veteran, with over 12 years active service, Costello placed third in the 1957 All-Navy Photo Contest.

Wave Receives JG Stripes

One of the first things Ltjg. Virginia E. Jackson, USNR, did during her post-officer training leave, was visit the Pentagon to see former "ship-mates." For eight years Miss Jackson held an active-duty TAR billet in the

DCNO (Air) organization, specifically dealing with Naval Air Reserve programs. She was a Chief Personnelman, and now has over 13½ years of Naval service to her credit.

As a college graduate, Miss Jackson was offered the opportunity to apply for a commission. She completed the 16-week course at Newport, Rhode Island and distinguished herself as the class speaker at graduation.

Ltjg. Jackson will still be in touch with naval air. Her first duty station as an officer is NAS PENSACOLA.



HOLDING TOOL of his trade, Costello finds it strange to be on other side of the camera.



LTJG. JACKSON visits James Boyle, DKC, a TAR working for Coordinator, NAReserve.



LTJG. GENE ASCHENBECK, flight instructor, gives NavCad oath to brother at NAS Dallas.



NARTU JAX planes flew 34 CAP Cadets to Eglin AFB. Cdr. J. A. Scovel arranged the trip.



TOM, JR., son of Gilmore, ADR1, holds lobster at safe distance at FASRon-725 picnic.

Stars Visit Willow Grove

NAS WILLOW GROVE played host to two local stars of radio and television, Gladys Webster and Ed Harvey of Station WCAU. Accompanying them were three young men selected from Miss Webster's audience who expressed a desire to join her in a helicopter ride.

The group toured the station, enjoyed some good Navy chow, and flew in a whirlybird piloted by Lt. "Dusty" Dussia.

Miss Webster made recordings of the briefing and her impressions. The tapes, made with the assistance of Mr. Harvey, were aired on her radio program and did much to foster good

relations between the Navy and the communities in the Philadelphia area.

FASRon-725 Redesignated

The 1958 annual family picnic had increased significance for FASRon-725 attached to NAS GLENVIEW. It marked the final drill day for the outfit as a service squadron. The unit was designated Patrol Squadron 724.

The new mission will be anti-submarine work. Flying P2V's, the pilots and men will train as a team in order to be ready to take their places in the chain of security when needed.

FASRon-725 was a Noel Davis winner two years ago. Its members will form the nucleus of VP-724.

Seattle S2F Saves Sloop

In response to a call from NAS WHIDBEY ISLAND, three Weekend Warriors from NAS SEATTLE located a racing sloop in distress. The *Lemoid*, a 36-footer, was caught in high seas and in danger of being smashed into rocks off the coast when the SOS was sent out.

Cdr. J. E. Sipprell, commanding officer of VS-892, piloted an S2F Tracker. Lt. V. A. Gibson and Airman R. B. Warner of his squadron served as co-pilot and crewman. With the aid of the plane's searchlight, a crash boat from Whidbey Island was able to escort the sloop to safe anchorage after the S2F pinpointed it.



HANDSHAKE between pilot Dussia and Miss Webster before briefing in HUP. Prospective NavCads enjoyed the trip.



TRACKER SEARCHLIGHT was used in locating sloop in distress. Cdr. Sipprell, Lt. Gibson and Warner of VS-892 discuss search mission.



CELL TO BE USED IN AIRCRAFT DESIGN

North American's New Unit Test Cell Admits Entire Aircraft

A new engine test cell, large enough to admit entire aircraft, has been completed at the Columbus Division of North American Aviation, Inc. It will be used for testing the A3J, T2J, and future aircraft projects.

The unit was completed by North American at a cost of nearly one million dollars. The building is 72 feet long, 60 feet wide, and is large enough to handle engines up to 50,000 pounds thrust.

The test unit is a building within a building. The inner walls, 12 inches thick, are separated from the nine inch-thick outer wall by 18 inches of air. The sound output of the high thrust engines is thereby reduced. The sound level will be comparable to that of automobile traffic on a city street.

The main entrance doors of the cell are 60 feet wide and stand 22 feet

high. They weigh 200 tons. This wide-opening door makes it possible for aircraft to be wheeled directly into the cell for the engine test.

Intake air for the engine under test is drawn through a series of silencers mounted on the roof of the building. Hot exhaust air is expelled through another silencer and is water cooled as it passes through to the outside.

Cell tests allow evaluation of the total installation effect at an early stage of aircraft development. At this point, refinement changes can be easily made. In addition, design theories can be substantiated for future engine applications.

Seeing Double at Pre-Flight Twin NavCads Had Own Aircraft

Instructors and other personnel at the Naval School of Pre-Flight, NAS PENSACOLA, have been seeing double for almost two months. The trouble isn't with their eyes, however.

Reason for the double-takes in Pre-Flight since early May is, or rather the reasons are, Naval Aviation Cadets Hansen, Ronald L. and Jon D., identical twins, who reported at that time for flight training. Causing "double-trouble" is nothing new to these young men; they've been mistaken for each other all their lives.

Ron and Jon are not novices at flying. Holders of commercial licenses, these 22-year-olds have already logged a sizeable number of flight hours. Ron has about 350, while Jon has logged



NAVCAD TWINS (L) TALK WITH INSTRUCTOR

just a little under 430 hours in the air.

They started flying at 12 years of age when a friend, a retired Navy chief, began to teach them basic fundamentals of flight. He flew with them some 30 or 40 hours each year for the next four years. They then bought a 1940 J-4A Piper Cub, with side-by-side seats, for \$400.00.

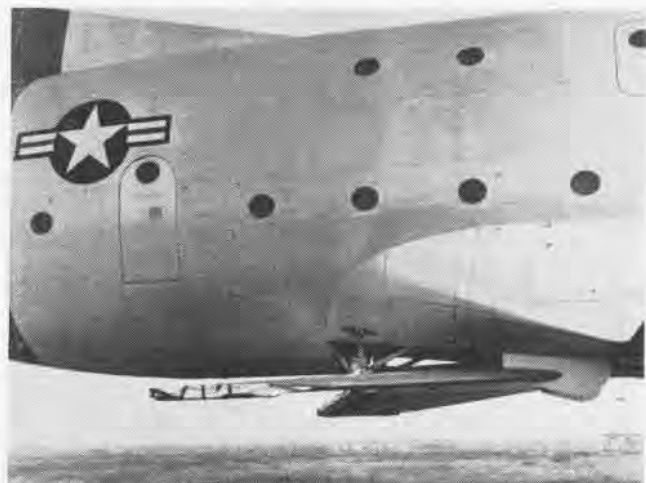
When the Cub cracked up in 1955 in an after-dark landing, the twins went to work again and by stringent economies managed to purchase a used Cessna 120. This they flew until they became NavCads.

Jon put into words their desires about flying for the Navy: "We hope to go into multi-engines. We'd like to fly multi-engine jets. One summer we did some crop dusting. That was enough acrobatics—we got all the hot rodding out of our systems."

• The Naval Air Publications Facility in Philadelphia has been redesignated the Naval Air Technical Services Facility (NATSF).



FIRST FLIGHT TIME logged by Chance Vought's F8U-3 was a bit below its subsequent high Mach performance in its initial flight. In photo at left, the Navy fighter's fuselage, complete with its Pratt & Whitney J-75 jet engine, is loaded in C-124 Globemaster. Wing tips



and tail surface were also carried inside giant transport. Special installation on C-124 (right) permitted external attachment of Crusader III main wing section for flight west from Ft. Worth's Carter Field. The unusual lift was made without incident.



A GIANT SQUADRON P2V-5F NEPTUNE SERVES AS A BACKGROUND FOR A GROUP PHOTOGRAPH OF SOME VP-876 'WEEKEND WARRIORS'

'ACTIVE' IS THE WORD FOR IT

THE 80 officers and men of Patrol Squadron 876, NAS OAKLAND, felt they had really accomplished something as they came to the end of their 1958 annual active duty tour. Each day was filled with training for their vital antisubmarine mission. Increased Navy emphasis on ASW operations made it essential that every moment of training be made to count.

First came ground training in preparation for familiarization flights. There were survival exercises, small arms handling, and ditching drills.

These were followed by a flight to San Diego for operations with USS *Aspro* (SS-309). The maneuvers



CDR. EVANS MEETS NEW SQUADRON MEMBER

gave VP-876 detection training and ordnance practice with a submarine. Sonobuoys and other electronic equipment were used to seek out the target; rockets and bombs, for the kill.

Long range navigational and instrument flights were made to Seattle, Washington, and Akron, Ohio. However, one of the major highlights of the two-week cruise was the three-day 4,400-mile flight to Barber's Point.

Long hours were spent in the preparation and maintenance of the P2V-5F *Neptunes*. The sense of a job well done served as incentive for line crews.

VP-876, commanded by Cdr. F. E. Evans, was commissioned in June 1956.



BRIEFING TO FAMILIARIZE THE CREW WITH DAY'S OPERATIONS



CREWMEN EVIDENCE HIGH MORALE UPON COMPLETION OF MISSION

IN FOREIGN SKIES

Italians Watch ASW Exercise

Twenty Italian Navy and Air Force officers joined six U. S. Navy and Air Force officers in boarding the carrier *Wasp* to observe a joint Italian-American antisubmarine exercise while the ship was operating in the Tyrrhenian Sea off Sardinia.

They watched a demonstration of Task Force 66's ASW capabilities as the *Wasp*, her embarked air squadrons, and seven destroyer escorts found and "killed" enemy submarines. Four Italian destroyers participated.

Three submarines, one Italian and two American, tried to penetrate the screen of destroyers who were protecting a simulated convoy.

Principal observers aboard the *Wasp* included MGen. John J. O'Hara, USAF, MGen. Ferdinando Kellerman, Italian Air Force, and Capt. Enso Zanni, Italian Navy, who commands the Italian Navy's ASW school.

RAdm. E. A. Hannegan, CTF-66, was embarked in the *Wasp* for its four-month Mediterranean deployment. The ship is commanded by Capt. H. Utter.

Argentine VIP's Visit Brunswick

RAdm. Mario Robbio, Argentine Naval Attache and Cdr. Jorge Bassi, head purchasing agent of the Argentine Navy, visited VP-26 at NAS BRUNSWICK, Maine. They made the

visit to familiarize themselves with the P2V-5 *Neptune* training which some Argentine Naval personnel attached to the squadron are receiving, to discuss problems which may be encountered and to inspect the training facilities at the Naval Air Station.

Cdr. F. L. Brand, VP-26 skipper, representing Commander Fleet Air Wing Three, and Lt. A. Hosch, the OinC of the Argentine detachment, greeted the visitors at the Portland Airport and escorted them to Brunswick where Capt. David Burns, Chief of Staff, Fleet Air Wing Three, escorted them through the training facilities.

During the tour, Cdr. Brand took the visitors on a flight in a *Neptune*.



F11F TIGER is inspected at NAS Atsugi by Lt. Gen. Sadamu Sanagi, center, Chief of Staff for the Japanese Air Self-defense Force, and his staff. Japan has ordered production of Grumman F11F Tigers to bolster its air arm.



THE SOVIETS revealed use of a U. S. style helmet, apparently identical to the USAF P-4 model when they published this picture of a test pilot. Heretofore the Soviet air forces had used the WW II leather type.

German Liaison Officer Honored

Capt. Hans Hefe, Liaison Officer of the German Navy at NAS PENSACOLA for the past two years, has been designated a U.S. Naval Aviator by VAdm. Robert Goldthwaite, Chief of Naval Air Training.

The Admiral presented the designation in recognition of the German officer's successfully completing the basic flight training program, including landing on the deck of an aircraft carrier. Stationed at Pensacola in connection with the training of German naval aviators, Capt. Hefe decided to take the training.

He has been flying in the German Navy since the early '30's and participated in the Spanish Civil War and the early phases of WW II. He was shot down during the Battle of Britain in 1940 and became a POW.

Foreign Attaches Visit Lex

Foreign military attaches and their assistants from 28 countries boarded the USS *Lexington* to observe a day of at-sea air operations. The *Lexington* cruise was part of the attaches tour of West Coast naval facilities.

F4D *Skyrays* from VF-213, FJ-41 *Furies* from VF-212 and AD *Skyraider* from VA-215 performed for the visitors, making catapult launches and arrested landings.

Capt. Burl Bailey, *Lexington* skipper, toured the ship with his visitors



CLEMENCEAU, largest warship to be built in France since 1939, is nearing completion at the Brest Navy Yard. Trials are scheduled to start soon. Built by Chantiers de l'Atlantique, the 846-foot carrier compares to British *Hermes/Centaur* class in size but is faster (32 knots max.). Powerplant is rated at 120,000 b.h.p.; cruising radius is 7,500 miles at 18 knots. Flight deck and bridge structure are armored. (Photograph of the model by France Actuelle.)



WITH PERFECT SYNCHRONIZATION, three ships in Fleet Review—Bennington (foreground), Newcastle, and Ontario—salute Princess Margaret.



USS BENNINGTON arrives at Esquimalt Harbor. In two afternoons, over 16,000 British Columbians were escorted through carrier's upper decks.

CANADA HOST TO U. S. SHIPS

DURING THE Centenary Celebration of British Columbia, American ships—Bennington, Wiltsie, Hammer, Aspro and Estes—joined those of the British and Canadian navies in Fleet Week International Naval Review.

In the review held in Royal Roads off Victoria, 32 ships took part. As Princess Margaret on the spotless destroyer, HMCS Crescent, passed the line of warships, a perfectly coordinated Royal Salute of 21 guns was fired by the Bennington, Estes, Ontario and Newcastle. On the flight deck of the Bennington, as aboard each of the ships, U. S. sailors swirled their hats into the air and yelled, "Hip! Hip! Hip! Hooray!" Unused to "cheering ship," the American sailors had been practicing for almost a week.

One of the events of the week was a parade in Victoria. RAdm. Ralph S. Clark, ComCarDiv-5, was senior officer on the reviewing stand. He was flanked by RAdm. H. S. Rayner, Pacific Commander of the Royal Canadian Navy, and the Hon. F. M. Ross, Lt. Governor of British Columbia.



REAR ADMIRAL RAYNER, Rear Admiral Clarke, and Lieutenant Governor Ross reviewed the international naval parade held in downtown Victoria.



HER ROYAL HIGHNESS, Princess Margaret of Great Britain, greets crowds on arrival.



BENNINGTON COMES to anchor; Canadian cruiser Ontario is seen in center foreground.



AMERICAN SAILORS quickly make friends with a member of Canadian Scotch Infantry Unit.

LET'S LOOK AT THE RECORD

New SNORT Record is Set Mach 3.6 Reached in 1.76 Seconds

A rocket-powered sled blasted down the Supersonic Naval Ordnance Research Track (SNORT) at NOTS CHINA LAKE at a speed of 2827.5 mph to break a previous record set in March at the Air Force Missile Development Center, Alamogordo, N. M.

The run was made during a routine test in which large missile nose cone components were being evaluated.

The sled is mounted on a monorail. It attained its maximum speed in a distance of 3600 feet in 1.76 seconds.

VS-21 Pilots Fly Safely Five Score 200th Carrier Landing

Five pilots of Air Antisubmarine Squadron 21 have each made 200 carrier landings in S2F Trackers in three years of steady VS flying. The same five have collectively recorded another 1000 carrier landings as co-pilots.

Average accident-free hours for the five pilots is 1600.

Lieutenants Ron Kennedy, Marv Peterson, M. G. Alexander, Al Ries and John Gauthier have been com-

mended by Cdr. Leo Meacher, CO of VS-21. They previously served with VS-20 before it became VS-21.

When the *Phil Sea* winds up its present cruise, VS-21 will have completed its fifth trip to the Orient since the squadron was formed in April of 1950.

Crockett Earns 'Well Done' Cited by Air Force for Landing

Lt. Charles Crockett, a VF-22 pilot, has been awarded a "well done" from the Air Force. He earned the citation for outstanding airmanship in landing a flamed-out T-33 trainer while he was an exchange officer with the 3615th Flying Training Wing at Craig AF Base, Florida.

He was flying a student on an instrument standardization flight at 18,000 feet above a solid undercast when the flame-out occurred. An automatic airstart was accomplished which resulted in engine vibration, rumbling, and the tailpipe temperature exceeding maximum limit.

Lt. Crockett placed the throttle in the stopcocked position. A second automatic airstart was discontinued because of low RPM and exhaust gas temperature. By then he had contacted

the Maxwell AFB tower and explained the situation. The tower immediately gave DF steers to the disabled T-33 and a flame-out IFR penetration to 5500 feet was accomplished. He landed deadstick on the Maxwell runway.



CDR. R. H. MILLS, CAG-3, congratulates Lt. T. J. Killebic (L) VAH-9, and Lt. W. I. Brown (R), VA(AW)-35 upon their becoming the first jet pilot and prop pilot respectively to amass 100 landings aboard new Saratoga.

CVA-11 Wins Distinction Ship Paper Awarded DOD Honor

The USS *Intrepid's* newspaper, "The Ketcher," has won first honors in the photo-offset overseas category of Department of Defense Newspaper Awards for the first quarter of 1958.

The basis of selection of outstanding service journals is the degree to which they promote "efficiency, welfare and general morale of personnel through excellence of content, news interest and effectiveness of design."

In choosing the quarterly award winners, the Armed Forces Press Service editorial and art staff reviewed more than 1300 service publications in eight categories.

Special attention is paid to layout, absence of typographical errors, balance of local and service news, and appearance. Awards indicate a high standard of service journalism.

Copter Unit Makes Mark Flies 10,000 Accident Free Hours

On 18 July 1958, Helicopter Anti-Submarine Squadron One, NAS KEY WEST, had the honor of becoming the first helicopter squadron in the U. S. Navy to attain 10,000 consecutive hours of accident-free flight time. Cdr. J. S. Zeigler, HS-1 skipper, flew #54 to mark the historic event.

HS-1 has averaged over 500 flight hours a month since November 1956.



THESE 29 MIDSHIPMEN, representing some 300 midshipmen from colleges and universities, spent part of their cruise aboard the antisubmarine carrier *Princeton* in the Pacific. They visited several Far East ports and contributed to the President's "People to People" program. Midshipmen were rotated through operations, gunnery, engineering and navigation departments aboard the *Princeton* and helped control aircraft making simulated submarine "kills" at sea.

VETERAN PILOT RETIRES



SHIELDS ACCEPTS BOX FROM CDR. BUTTS

TRAVIS U. "Pappy" Shields, AMC (AP), has retired from the Navy as a Lieutenant after completing 28 years of service, logging 13,000 flight hours, and flying two and a half million air miles.

Shields entered the Navy in 1930 and began flight training at Pensacola seven years later. He became one of the Navy's few enlisted pilots to be designated a plane commander.

He was assigned to Advanced Training Unit 206 at Pensacola from January 1955 until his retirement there this summer.

Upon completion of flight training at Pensacola, he was transferred to Patrol Squadron 31 in Panama, which operated in the Caribbean Sea and Gulf of Mexico. His duties were primarily antisubmarine flights during the first stages of World War II.

In 1942, Shields received a temporary commission, but reverted to his enlisted rate in 1950.

After his commissioning, Shields was attached to the headquarters squadron and served as utilities officer at Key West. While there he assisted the Army chemical warfare unit and was commended for experiments he made.

Part of his wartime duty was flying VIP's from Moffett Field to Washington in an R5D transport. Later he became personal pilot for Adm. William F. "Bull" Halsey, flying the Admiral's Coronado aircraft. Some years later he became "personal pilot" to VAdm. John Dale Price, Chief of Naval Air Training.

Shields became one of the first fliers

to penetrate Atlantic hurricanes in the early months of World War II. Partly through his efforts, it became possible for Navy aerologists to plot the course of hurricanes.

The veteran pilot has flown most of the Navy's aircraft—from the old N-9 trainer to *Mars* flying boats, logging about 6000 hours in the latter. He qualified in jets at North Whiting Field in 1951.

The old-timer was a plank owner in ATU-206. He reported to the unit in time for its activation and retired the day it was disestablished. In his tour he instructed 956 student pilots in navigation. His students are now practicing their knowledge.

Reminiscing on the past, Shields recalled Pensacola when it was a small base with a wall surrounding it. The five outlying fields were called Stump Claypits, Bell's Farm, Felton's Field, City Field and Bayou Field when he first reported.

In appreciation of his long, devoted service to his country and the Navy, Cdr. John L. Butts, Officer in Charge of ATU-206, presented Shields a silver cigarette box from the officers of the unit. Engraved on the box was the legend: "To Pappy—a pilot's pilot."

Reenlists at 60,000 Feet Ceremony Held in Space Chamber

Hospital Corpsman Marion E. Meyers, attached to Air Crew Equipment Laboratory at Naval Air Material Center, Philadelphia, reenlisted



CAPT. BOSEE SWEARS IN CORPSMAN MEYERS

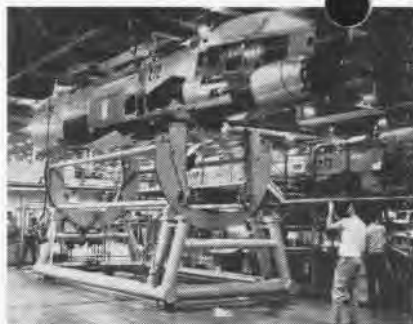
for another six years of service while sealed in a space chamber simulating 60,000 feet.

Wearing a Goodrich high altitude pressure suit, Capt. Roland A. Bosee, Medical Service Corps, Director of the Laboratory, administered the oath to make the enlistment contract binding. Meyers wore an experimental Arrowhead suit. Lt. Robert Langevin, MC, and Chief Warrant Officer Richard Weaver, stood by as observers.

The simulated flight took off at 1057. At 1116 the craft reached a simulated 60,000 feet. At 1125 Meyers repeated the oath and was formally enlisted. At 1130 the simulated flight landed and the men returned at once to their regular duties.



PROUD POSSESSORS of 33 E's, VA-172 pilots are seen shortly after their return to NAS Cecil Field from a six-week deployment to Guantanamo Bay. Nineteen of the 23 pilots accumulated the total in bomb-delivery exercises, flying A4D Skyhawks. High-scorer was LCDr. William E. Grimes who won four E's out of a possible four. The Blue Bolt Squadron, skippered by Cdr. B. J. Robison, launched 912 flights in 23 days for a total of 823 accident-free flying hours.



ROCK 'N ROLL TREATMENT REMOVES TRASH

Crusaders Get the 'Roll' Hard-to-find Trash is Shaken Out

Like huge chickens revolving over a barbecue spit, F8U Crusader fuselages are providing an unusual sight for Chance Vought visitors at Dallas.

The idea is not cooking on a grand scale, but removal of tiny bits of metal, rivet heads, metal shavings, an occasional washer, and other debris accumulated during assembly operations in sections of the airplane either inaccessible or difficult to reach with vacuum cleaners.

Rotation in the "roll-over" fixture and simultaneous "shaking" by a mechanical vibrator dislodges the debris, a by-product of assembly line activity, and provides an insurance policy against lodging of a small piece of waste material in the plane's vital controls during flight.

Designed by the plant's tool design group, the fixture carries to the ultimate the "clean aircraft" procedure

stressed throughout assembly of the Crusader, with frequent inspections and vacuuming to remove debris.

Fuselages go into the fixture before wings or tail sections are added.



LTJG. G. S. JENSON (rear cockpit) acknowledges the "thumbs up" he receives from Cdr. G. A. Buckowski, check pilot. Jensen is first student to complete training syllabus at new Basic Training Group Seven, Memphis.

VA-63 Gets Fury Package Will Permit Inflight Refueling

The Fighting Red Cocks of Attack Squadron 63 have become the first fleet squadron to receive the FJ-4B "Buddy Tanker Package" for inflight refueling. The new tanker package, which can be attached to any of the squadron's aircraft, will extend the Fury's range substantially by inflight refueling from sister ships at high altitudes.

First to qualify in refueling from FJ-4B tankers were Cdr. W. C. Chapman, CO of VA-63, LCdr. J. B. Dunn, executive officer, and Ldr. R. F. Doss of Commander Fleet Air Alameda staff.

Sara Entertains Royalty Sixth Fleet Air Power is Shown

VAdm. C. R. Brown recently received King Paul and Queen Frederika of Greece aboard the carrier Saratoga in the Mediterranean.

Other royalty aboard for the striking air demonstration were King Michael of Rumania, Crown Prince Constantine, Princess Sophia, Princess



VISITORS ARE SHOWN AROUND FLIGHT DECK

Irene of Greece, and U. S. Ambassador James W. Riddleberger, who escorted the guests during their visit.

A demonstration of tactical bombing, strafing and rocket assaults on ship-towed targets was staged by 37 aircraft. Six supersonic F8U Crusaders flashed past the Saratoga, then A3D Skywarriors and F3H Demons joined the Crusaders in a display of Sixth Fleet air power before the royal guests and 40 members of the Greek press.

Dining with the Sixth Fleet commander and Greek royalty were RAdm. Clifford S. Cooper, Commander Carrier Division Six, and Capt. A. R. Matter, Saratoga skipper.

Saratoga's crew manned the rail as a 21-gun welcoming salute was fired.

Training Squadron Formed VMT-1 Is Based at Cherry Point

Marine Training Squadron One (VMT-1) has been established at MCAS CHERRY POINT under command of Lt. Col. P. C. DeLong, former commanding officer of Marine Attack Training Squadron 20.

The new squadron is under administrative and operational control of the Commanding General, Second Marine Aircraft Wing.

Training courses to be conducted by the all-jet squadron include the Swept Wing Jet Transition course, Jet Instrument Training course, as well as Ground Special Weapons training.



NEWEST OF THE Forrestal-class carriers, and first to be assigned to the Pacific Fleet, USS Ranger is pushed into the stream at Norfolk, Va., for the last time. With full complement and air group aboard, CVA-61 is en route to new home port at NAS Alameda, via Cape Horn.

AIR BASES FROM ACORN'S GROW

AT 11 NAVAL districts, ACORN Command Divisions operate as part of the Naval Reserve Advanced Base Command Program. This program, administered by the Chief of Naval Personnel with the advice of CNO, provides training for officers qualified in the organization, administration, operation and planning of advanced and outlying bases, in the event of national emergency.

ACORNS, as their part, provide personnel to naval air stations in advanced areas. There are 14 ACORNS altogether. Each ACORN Division has 15 officer billets. The CO, exec, operations and air maintenance officers require 13XX designators. There are two Supply Corps Officers, two CEC, one Medical, one Dental, and



CAPT. L. VAN ANTWERP, C.O. OF NS ROOSEVELT ROADS, COOPERATED WITH ACORN 1-2

the same assignment. At the end of the work period, two units exchange solutions and submit critiques to one another. In this manner, the annual

base beyond the continental limits.

The 1958 project was the development of NS ROOSEVELT ROADS, Puerto Rico, to accomplish a wartime mission. ACORN Division 1-2 spent the two-week training period "on location." The officers were thus able to compare conditions as they exist with the ones they had examined on paper.

Cdr. W. B. Fairweather, a Boston school teacher in civilian life, is skipper of ACORN Division 1-2. He finds the billet a constant challenge.



MORRIS AND PUGSLEY SURVEY THE DRYDOCK

effort is fully analyzed and evaluated.

In addition to the assigned project, the annual active duty cruises are planned in three-year cycles. The first year the officers usually attend specialized schools; the next, they work in their wartime billets at air stations within the United States; the third year the group goes to an outlying



ACORN C.O. AND EXEC WITH THE NS SKIPPER



LT. J. MC CLOSKEY WATCHES TOWER OPS

the remainder 11XX. If called to active duty, they are prepared to serve as heads of departments at an advanced base air station.

Naval Reserve Advanced Base ACORN Command Division 1-2, located in the 1st ND, Boston, is typical. The members drill one weekend a month at NAS SOUTH WEYMOUTH. Each year the division carries out a problem involving the development of an advanced base naval air station. The projected mission is announced; maps and charts of the area are furnished. The ACORN Division takes it from there, coordinating the construction and operational requirements to build it up to wartime status. Each problem takes one year to complete.

All ACORN Divisions are given

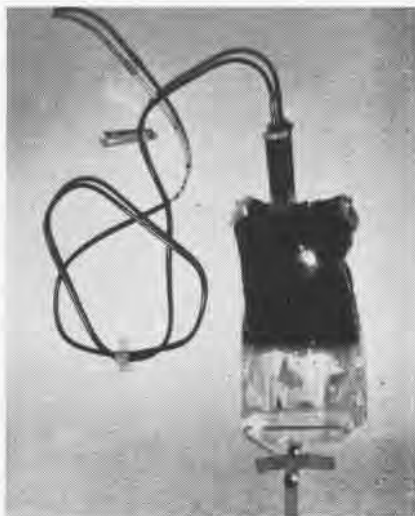
PILOT 'INFLIGHT REFUELING'

HEAVY ATTACK Wing Two has developed and placed in use a method of inflight feeding for A3D crews flying at high altitude. Using blood donor bags to hold the food has proved an effective method.

How to provide nourishment to a crew flying at 40,000 feet didn't become a problem for the Navy until the development of the A3D. Up to that time flights were short and missing a meal wasn't of much consequence. With the long range of the *Skywarrior*, it was necessary to develop "inflight refueling," so that one could eat without removing oxygen masks.

Ground work on the problem was done by Medical Officer, Lt. Harold R. Keegan, MC, former HATWing Two flight surgeon, and continued by Lt. Amos P. Bratrude, MC, and Lt. Lee M. Griffin, MC.

The first problem was a container. Needing something that would be easy to carry, non-breakable and require little or no air venting, the surgeons hit on the bags used for collecting blood for blood banks. They proved to be just the thing.



PLASTIC FOOD BAG IDEAL FOR HIGH FLIGHT

Fruit juices were found to be the most satisfactory "food" for the inflight feedings, primarily because they contain dextrose for the energy needed to fly the 35-ton *Skywarrior* aboard a carrier after a long mission. Other advantages were that this kind of food remains in liquid form at high alti-

tudes, and leaves no mucous in the throat.

The surgeons provided "food sacs" to the A3D crews of VAH-8 who handled the field testing. A few bugs found in the system were ironed out, and at the present time the inflight kitchen is set up to provide food sacs to all heavy attack units at NAS WHIDBEY ISLAND.

For the information of others interested in using this method of inflight feeding, the plastic blood donor bags with the trade name of Safetyflex can be obtained by open purchase. Manufacturer's number is MP-600.

The tubing is standard intravenous tubing which costs 21 cents and can be ordered through the supply system. The tube is shortened one-and-one-half to two feet prior to using, and the hard plastic piece on the end is removed.

With proper care, containers can be used approximately five times. To prepare and fill bags, remove the metal seal and rubber stopper from bag if present. Save the rubber stoppers for storing the filled bags without the tubes, HAW-2 advises.

Only one opening is used in filling the bags, and a rubber hose with the plastic inserted from one of the intravenous tubes works best in filling. Some type of gravity flow is needed to fill the bags. At present the surgeons use a quart container with rubber tubing and plastic inserter at-



METAL CLIP (RIGHT HAND) CONTROLS FLOW

tached. A forceps on the rubber tube regulates the flow.

One pint of fluid is put in each bag. Squeeze the air out of the bag before attaching the intravenous tubing as air expands six times at the altitude at which the bags are used and could explode it.

A metal flow clip serves as the on-off valve to control the flow of fluid, and the tubing should be secured to the plastic bag with two or three pieces of scotch tape.

In use the bags are hung upside down on the pilot's chest—below the level of the head—and the tube is run up beneath the oxygen mask and into the mouth. The metal flow clip is opened and the fluid is sucked up into the tube.

The bags are washed with a soapy detergent solution followed by a chlorine rinse and then a water rinse.

HAW-2 recommends the use of the bags for flights over three hours long.

H03S-1 Is Mustered Out Her 9-Year Career Was Versatile

The last H03S-1 helicopter has been mustered out of operational service. Bureau number 123134, accepted by the Navy in April 1949 and last assigned to a rescue unit at NAS CORPUS CHRISTI, has been turned over to the O&R Department there for salvage.

As a type, the Sikorsky H03S-1 proved its versatility over and over again performing such tasks as behind-the-lines and over-water rescues, gunfire spotting for cruisers and battleships, evacuation of wounded personnel, mine spotting, cargo hauling, and transportation of personnel.

BuNo 123134 served first at NAS QUONSET POINT where she performed her first rescue December 28, 1949. In July 1950, the first month of the Korean war, she was transferred to HU-1 at NAS MIRAMAR, the squadron which provides helicopter support for ships and units in the Pacific Fleet.

Her duty assignments included tours aboard USS *Missouri*, USS *Philippine Sea*, USS *Boxer*, USS *Princeton*, USS *Helena*, USS *Los Angeles*, USS *Kearsarge*, USS *Valley Forge*, and USS *Rochester*.

Her log shows these passengers were flown: Bob Hope, Marilyn Maxwell, Mary Keats, Air Force Secretary Finletter, and a host of admirals, including Joy, Morehouse, Ewen, Doyle and Dyer.

REGULUS I PERFORMS IN NEW ENGLAND



REGULUS I HOISTED INTO PACKING POSITION FOR TRIP NORTH



ASSEMBLED MISSILE CARAVAN AWAITS THE SIGNAL TO MOVE OUT



PILOTS MAN THE FJ-3'S AND CHECK ALL RADIO CONTROL GEAR

GUIDED MISSILE Service Squadron Two, under the command of Cdr. H. J. Silberstein, is responsible for a number of *Regulus I* missiles. The birds are regularly launched, controlled and recovered in the vicinity of NAS CHINCOTEAGUE, the home base. However, the squadron is organized to send out detachments to far-flung activities for exercise and training purposes. Originally designated Guided Missile Group Two, it also provides services for submarines and surface ships with *Regulus* capability.

When ComNavAirLant approved the request of NAS Brunswick for the use of the mobile unit, GMSRON-2 quickly assembled its caravan and headed north. Two missiles, and equipment for handling, launching and recovery traveled as a convoy. Lt. L. H. Kinne and Ltjg. C. R. Levesque, two missile trainers, were responsible for the safety of the road trip.

Three FJ-3 missile escorts and two TV-2KD landing control aircraft flew to Maine to complete the detachment, headed by LCdr. H. R. Gordinier.

Upon arrival at Brunswick all hands turned to and readied the missiles, aircraft and equipment for the forthcoming events. During the period of the deployment, birds were launched from the air station and from USS *Barbero* (SSG-317), somewhere at sea. The exercises were considered very successful.

This first appearance of *Regulus I* in northern New England aroused a great deal of public interest up there.



ONE OF THE SUCCESSFUL LAUNCHINGS BY GMSRON-2 IN MAINE



THE BIRD LANDS SAFELY UNDER GUIDANCE OF CONTROL PILOTS



"PASS THE DEW TO ME LEW!" A double draught of jet fuel is taken from high flying F-84 tanker over Southern Maryland by two Navy YA4D-2 tankers. Unique chain-fashion inflight refueling experiments are being conducted by pilots of Naval Air Test Center, NAS Patuxent River.



FIRST GRADUATES of Sanfley Field's Military Management Academy (leadership school), hold their certificates as they pose for class photo. Class members are, first row: Chiefs D. J. Goss, R. Diminno, C. Beverly, C. H. Burke, V. H. Shealy; second row, G. Hakola, F. H. Anson, A. H. Jordan, T. E. Gilbert, A. F. McAlexander, E. E. Cotton; third row, D. O. Moyer, R. L. Higginbotham, W. F. Cochran, B. T. Woodell and V. E. Snow. Shealy paced class with 98.2.



GIANT BOEING 707 prototype, four-engine jet transport, is brought to a perfect landing at Boeing Field, Seattle, Washington, by Bell Aircraft automatic all-weather landing system in right foreground. In a series of flight tests, the system's radar picked up the jet transport two to four miles from end of the runway and controlled it through automatic pilot all the way to touchdown.

VF-64 Proves Proficiency

Turn in Record Number of Hours

During a deployment to Fallon, Nevada, VF-64 pilots in their F3H-2 *Demons* turned in flight records of 72 hours in one day, 505 hours in two weeks, and 677 hours for the month, a performance which topped all other Fleet Air Alameda *Demon* squadrons.

The F3H flyers wound up daytime carrier qualifications aboard the USS *Midway*. Proving their proficiency, VF-64 pilots averaged 22 arrested landings apiece, a total of 409.

One day they helped set a record by bringing aboard 104 of the day's 184 arrested landings, 43 before breakfast. Included was the *Midway's* 67,000th such arrested landing, which was made by Lt. W. D. Dittmar.

CAG-19 Pilots Log 67 E's

Moffett Squadrons Fly at Fallon

Pilots of Carrier Air Group 19 scored 67 E's in gunnery, bombing, rocketry and strafing during a recent deployment at NAAS FALLON, NEVADA.

CAG-19 consists of VF-191, VF-193, VA-192 and VA-195, all at Moffett.

VF-191, flying F11F *Tigers*, concentrated on air-to-air gunnery at 20,000 to 30,000 feet. VA-192, flying *Furies*, logged 31 E's for excellence in bombing, rocketry, strafing and special weapons delivery.

VF-193, flying *Demons*, enjoyed high aircraft availability during the deployment. VA-195 tallied 36 E's in day and night rocketry, strafing loft bombing, close air support and special weapons delivery during deployment.

Contract Awards Are Made

Survival Kits are Largest Order

An \$819,000 contract has been awarded the Yale and Towne Manufacturing Company for the manufacture of 300 aerobomb trucks for Navy.

General Electric Company received a \$211,516 award for services and materials to repair alternator-drives. A \$600,000 award for life raft survival kits was given to Plaikins, Inc., and a \$269,740 award for aircraft towbars went to Bubular Company.

Goodyear Tire and Rubber Company received a \$369,441 contract for aircraft brake assemblies. These contract awards were announced by the Navy Aviation Supply Office, Philadelphia.



CLIFF PARK smiles his thanks. A hemophiliac-sufferer, he needed his own blood bank. Com NatBase Key West, RAdm. F. D. McGorkle, notified all hands. Over 3000 men volunteered, 1270 from the NAS and its activities alone.



FATHER AND SON, Kenneth P. and William R. Finrock, are serving together in the electronic shop of Fighter Squadron 124 at NAS Moffett Field. Dad last served with VF-152; son served aboard the USS *Salisbury Sound*.



KEEPING a family tradition alive, Joe Sears takes the oath of allegiance as an officer candidate from his father, RAdm. Harry E. Sears. Ens. Sears entered the Navy in July; RAdm. Sears went on retired list in August.



LTGEN. J. SESSUMS, USAF, Air Research and Development Command, Andrews Air Force Base, pins commendation ribbon on Capt. E. Mason, USN, for organizing exchange techniques between military R and D activities.



LTGEN. E. A. POLLOCK, right, bears an explanation of the mission and capabilities of the F3D Skynight from 1st Lt. Richard E. Novak and MSgt. Dominic F. Catozza, Jr., during the general's inspection of Second Air Wing.



LT COL. J. F. BOLT, C.O. of VMA-214, right, presents a quarterly AirFMEPac Safety award to Capt. G. M. Lawrence, squadron safety officer. During first quarter of 1958, squadron pilots flew 761 accident-free hours.



TELEPHONE NUMBERS which can be used to get needed articles from NAS Quonset Point are jotted down by Lt. R. Buvkemper of NAS Brunswick, Maine. Quonset's service offers visiting pilots lunches and parts, without chits.



CAPT. N. W. CAMPBELL, C.O. of NAS Miramar and Cdr. H. T. Johnson, look on as Robert Cordy, CAA controller and Bill Slaton, AC3, demonstrate the operation of the new Radar Traffic Control Center at the air station.



RADIO RANGE demonstrator used for improved teaching of ADF/MDF procedures at Advanced Training activities was built by Training Device personnel of the Pensacola Regional Office. An ATU-206 instructor uses the aid.

VP-23 Sets 90-Day Mark Operations Covered Wide Area

Patrol Squadron 23 claims one of the most remarkable flight-time records in the annals of Fleet Air Wing Three. The NAS BRUNSWICK-based

Neptune squadron racked up 3016.5 accident and incident-free hours during a 90-day period, a remarkable record because it was accomplished under varying weather extremes.

Skipped by Cdr. Floyd F. Reck, VP-23 participated in Atlantic Fleet

exercises ranging from the Caribbean Sea to north of the Arctic Circle.

AirWing-3, commanded by Capt. George P. Koch, is also headquartered at Brunswick, Maine. The wing is the controlling authority for all ASW operations in the Northern Air Zone.

LETTERS

STRS:

Captain Thomas F. Connolly's answer to the aviators of VA-214 about the problem of the climbing jet airplanes (Letters, July *Naval Aviation News*) is correct. The solution is apparent if one directs his analysis to a consideration of the levels of the mechanical energy of the airplanes.

An airplane in flight possesses two forms of mechanical energy: kinetic and potential, or energy due to motion and energy due to position, respectively, in relation to some reference such as the earth. An airplane can trade kinetic and potential energy back and forth without appreciable loss. A pilot trades potential energy (altitude) for kinetic energy (velocity) when he noses his airplane over to recover from a stall, for example. The trade of energy is from kinetic to potential in a zoom to gain altitude.

Assuming small angles of climb and a relatively constant true airspeed, the airplane in the problem that is climbing westward experiences a constant reduction of kinetic energy as its velocity over the earth decreases because of the increasing headwind; the airplane climbing eastward experiences a constant increase of kinetic energy as its velocity over the earth increases. Although the indicated airspeeds of the two airplanes are the same for any given altitude, their velocities in relation to the earth are diverging because of the wind gradient.

Since the problem involves identical airplanes that had identical amounts of mechanical

energy at the start of the climb, the airplane climbing into the wind, with the lesser kinetic energy, *must* have the greater potential energy, i.e., altitude over the earth, at any given moment.

For readers that prefer a mathematical solution, the wind gradient causes a horizontal acceleration:

$$a_w = \frac{dV_w}{dt} = \left(\frac{dV_w}{dh} \right) \left(\frac{dh}{dt} \right)_a$$

where: a_w = horizontal acceleration,

$$\frac{dV_w}{dh} = \text{wind gradient, (+) headwind,}$$

(-) tailwind, and

$$\left(\frac{dh}{dt} \right)_a = \text{accelerated rate of climb.}$$

Considering the increment of kinetic energy that must be balanced by an increment of potential energy if the true airspeed is maintained constant,

$$\left(\frac{W}{g} \right) V \left(\frac{dV_w}{dt} \right) + W \left(\frac{dh}{dt} \right)_w = 0$$

From this equation,

$$\frac{W}{g} \frac{dV_w}{dh} \left(\frac{dh}{dt} \right)_a = - \frac{W}{V} \Delta \left(\frac{dh}{dt} \right)$$

$$\Delta \left(\frac{dh}{dt} \right) = - \frac{V}{g} \frac{dV_w}{dh} \left(\frac{dh}{dt} \right)_a$$

Then the normal, or unaccelerated, rate of climb is,

$$\frac{dh}{dt} = \left(\frac{dh}{dt} \right)_a - \frac{V}{g} \frac{dV_w}{dh} \left(\frac{dh}{dt} \right)_a$$

or

$$\frac{dh}{dt} = \left(\frac{dh}{dt} \right)_a \left(1 - \frac{V}{g} \frac{dV_w}{dh} \right)$$

I have a graph that gives numerical values of the correction factor $\left(1 - \frac{V}{g} \frac{dV_w}{dh} \right)$

and will be glad to send a copy to any reader who sends a self-addressed envelope to me.

Using rough approximations of true airspeed during climb, a representative gross weight for the type airplane flown by VA-214 and assuming the wind gradient to be constant, computations for conditions stated in the hypothetical problem show that the airplane climbing eastward will be at an altitude of approximately 23,500 feet when the airplane climbing westward reaches 30,000 feet.

ROBERT R. KING, JR., LT. USN
VX-5, China Lake, California.

* Any other comments?

★ ★ ★ ★

ATTENTION TEST PILOTS

All graduates of Test Pilot Training who are interested in attending the TPT Alumni Party scheduled for October, should forward their current address to Test Pilot Training Division, Naval Air Test Center, Patuxent River, Md.

★ ★ ★ ★



UNUSUAL PHOTO gives up-angle on jumper. Camera catches underside of parachute and chutist released from C-124 Globemaster during Army-AF exercises out of Erding AF Base, Germany as a part of Operation Blue Bat.



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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, 22 April 1958.

● COVER

A3D Skywarrior comes aboard a carrier in the Pacific. For pictures of Pacific air power and Operation Ocean Link, see pages 18-21

● SUBSCRIPTIONS

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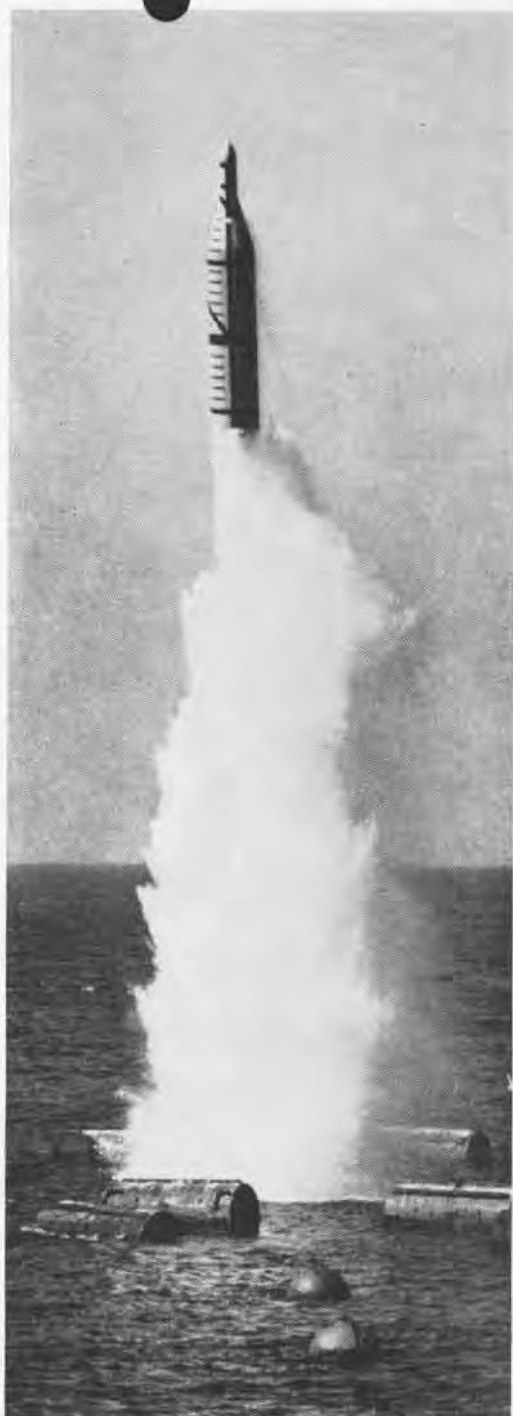
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POLARIS TOMORROW

Polaris, weapon of tomorrow, goes through "Pop Up" tests at San Clemente Island Sea Range at NOTS, China Lake. Upper left, test missile is lowered into launching tube at Long Beach shipyard; lower left, nets are rigged to catch Polaris as it falls back to water; and right, missile hurtles upward from depths of the sea as it will be fired from tomorrow's submarines.



READY FOR ANYTHING, SIR!

Yes, sir, the Naval Air Reserve is ready, and not only for inspection. It is ready to carry out at a moment's notice, the order—"Pilots! Man your planes!" Trained to a fine point to respond instantly in the event of a national emergency, the Naval Air Reserve is ready to carry out pre-

assigned missions as an essential part of over-all naval strategy. The twelfth Annual Inspection and Review at NAS, Oakland, California, presents an impressive picture of this reservoir of reserve strength. Three thousand skilled and dedicated Weekend Warriors filled the vast hangar during the ceremonies. Why not find out today if YOU can 'meet the muster' as a member of the vitally important Naval Reserve? Learn the facts by going to your nearest Naval Air Station or Recruiting Station.

NAVAL AVIATION

NEWS