

NAVAL AVIATION

NEWS



46th Year of Publication

JANUARY 1965

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INSTANT RESPONSE

' . . . recent activity on the Gulf of Tonkin [is] a classic example of the utility and instantaneous responsiveness of Naval Forces to the Cold War continuum. Our response in North Vietnam was also a perfect example of making "the punishment fit the crime." That immediate but limited retaliation has renewed carriers' creditability as a deterrent to limited and sub-limited war. This should be no surprise, because that same Navy-Marine team has been . . . effective in nearly every brush fire situation since the end of WW II'—VAdm. W. A. Schoech

NAVAL AVIATION NEWS

FORTY-SIXTH YEAR OF PUBLICATION JANUARY 1965

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■ THE COVER

The salute to 1965 on the front cover is appropriately made by USS Enterprise (CVAN-65) Above, an F-4B of Fighter Squadron 143, embarked in USS Constellation (CVA-64) fires Zuni rockets. The photograph was taken by Ltjg. R. D. Rudolph who flies with Photographic Squadron 63.



NAVAL AVIATION NEWS

Hercules Pilots Are Cited Given Awards for CVA Landings

The two highest military awards available for peacetime aerial operations were presented to the pilot and copilot who proved that the C-130 *Hercules* can be operated on the flight deck of an aircraft carrier. Lt. J.H. Flatley, III, received the Distinguished Flying Cross and his copilot, LCdr. W.W. Stovall, was awarded an Oak Leaf cluster in lieu of a third Air Medal.

The two men evaluated the carrier operating feasibility of the 70,270-pound *Hercules*, an aircraft with a 132-foot wing span and a length of more than 97 feet. They made 19 touch-and-go landings and 21 full-stop landings followed by deck launches aboard the USS *Forrestal* in autumn 1963. Aircraft weight ranged

up to 121,000 pounds on some of the landings (NANews, Nov. 1964.)

Presentation of the awards was made in November by RAdm. James R. Lee, Commander of the Naval Air Test Center at Patuxent River. Flatley and Stovall were attached to the Carrier Suitability Branch of the Flight Test Division when assigned to the C-130 *Hercules* project.

Fiberglass Shell Blades Variable Camber Propeller Tested

A tandem variable camber propeller designed for flight has been tested in 50 hours of preflight rating tests on a G.E. T-64 turbine engine at United Aircraft's Hamilton Standard Division, Windsor Locks, Conn. Scheduled next for the 13½-foot diameter propeller will be a blade stress survey and a calibration of static thrust and torque characteristics on an electric

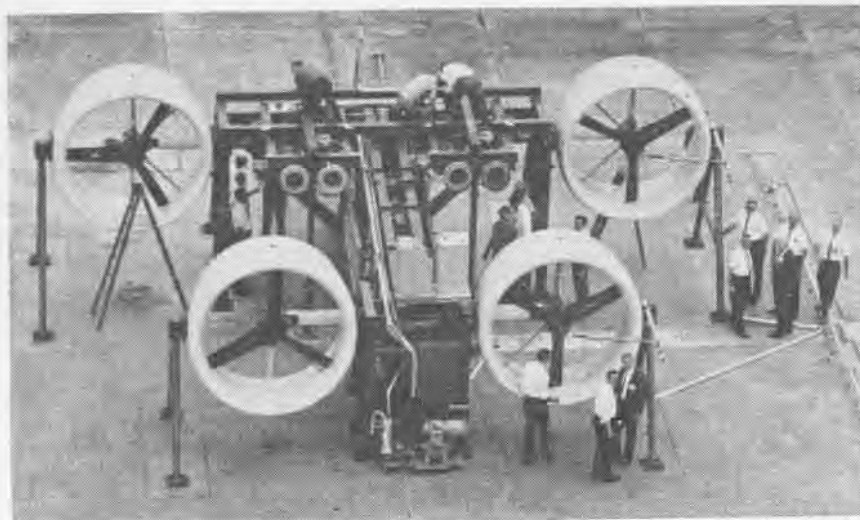
whirl rig at USAF's Aeronautical System Division, Wright-Patterson AFB.

In a program supported by BUWEPs, Hamilton Standard has also conducted 500 hours of component fatigue and endurance testing, and 100 hours of development tests on the T-64 engine. Flight tests are planned for this year.

The staggered biplane position of paired blades (in photograph) pro-



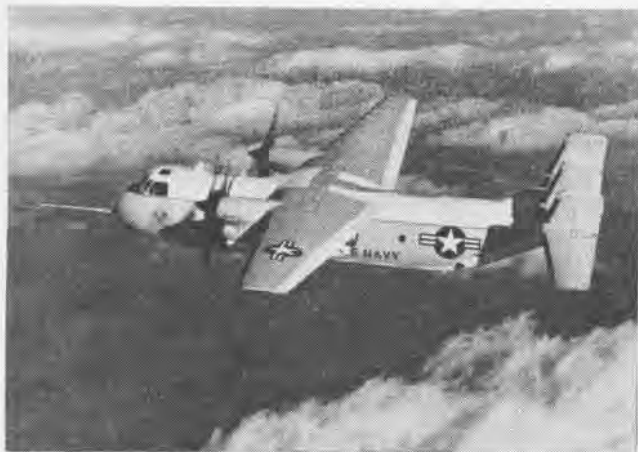
BI-PLANE POSITION FOR HIGH SPEED CRUISE



HEART OF BELL'S X-22A V/STOL is its propulsion system. The four T-58 engines, four ducted fan units and the drive system are shown on the ground test stand. For VTOL, the ducts are tilted 90° to the vertical position from the forward flight position. For the Tri-Service V/STOL program, two X-22A research aircraft are being built for the Navy. The rig is being used to test extensively the propulsion system before the aircraft are assembled and flown.

vides lower blade camber for high speed cruise conditions. The rear blade's leading edge and forward blade's trailing edge are more closely aligned in high camber position required for high thrust of aircraft takeoff and climb.

The propeller's blades, made of fiberglass shell organically bonded to a steel, load-carrying spar, are lighter than solid aluminum versions. Hamilton Standard is developing the variable camber concept in order to improve the performance of current prop-driven aircraft and for advanced short and vertical takeoff/landing craft.



CARRIER ON BOARD DELIVERY (COD) capability took a giant step forward with the acceptance of the C-2A aircraft December 2 at Grumman's Long Island facility. Secretary of the Navy, Paul H. Nitze, made the acceptance and flew C-2A's first Navy flight as co-pilot. A modification of the E-2A Hawkeye, the C-2A will join the Fleet in



1966, reduce the pipeline time for delivery of cargo and personnel to carriers. Maximum loads are 15,000 lbs. of cargo or 40 passengers. Cruising speed is 300 mph; range, 1300 miles with five-ton payload. It has nose-tow launch feature and turboprop engines similar to Hawk-eye. Large rear-loading doors makes for easy loading of bulky cargo.

Aircraft Lighting Study North American Will Make Tests

BUWEPs has awarded North American Aviation's Columbus Division a contract to make a comprehensive study of exterior lighting systems on all aircraft in the Navy's inventory.

The study is expected to require a year to complete and will include checks on join-up, anti-collision, position, formation, air-refueling and other special purpose lights.

Fixed-wing, rotary-wing, VTOL and STOL craft will receive attention.

CH-53A Makes First Flight Transport Large But Maneuverable

The world's largest assault-transport helicopter—the Sikorsky CH-53A designed and built for the U.S. Marine Corps—made its first public flight November 19 at Stratford, Conn., before representatives of the U. S. military services and the press.

The CH-53A will carry a greater payload faster and farther than any helicopter in the U. S. military inventory. Its cabin accommodates 38 troops or 24 litter patients or 8000 pounds of cargo. It cruises at 172 miles an hour and can attain a top speed of 200 mph.

Despite its size, the CH-53A has the agility of helicopters of much smaller weights and dimensions. Its maneuverability on the ground and in the air was demonstrated by Lloyd Blanchard and Robert Perrone, Sikorsky engineering test pilots.

A tricycle landing gear, with a 360° swiveling nose wheel, enables the CH-53A to operate within confined landing areas, such as carrier decks or jungle clearings. The main rotor and tail rotor pylon fold and unfold automatically in 60 seconds. A watertight hull and sponsons permit emergency flotation.

The CH-53A is supported by a joint Sikorsky/Navy/Marine Corps Integrated Maintenance Management (IMM) program. The first of its kind in the

helicopter industry, the IMM program was developed to insure maximum operational readiness of the aircraft. The IMM team has conducted an exhaustive and continuing maintenance analysis from the CH-53A's early design stage. The team will provide direction on such matters as personnel training, support equipment and spares during production and through introduction of the aircraft into Marine Corps inventory. Deliveries to the Fleet are scheduled to begin early in 1966.



ADM. HORACIO RIVERO, Vice Chief of Naval Operations (front), with VAdm. Ephraim Holmes, Director of Naval Program Planning, and RAdm. Ernest E. Christensen (right), BuWeps Assistant Chief for Plans and Program, are briefed at Grumman Engineering Corporation, Bethpage, Long Island, where they had gone to review the E-2A Hawkeye program. On the return trip to Washington the admirals rode as crew members of two E-2A's, Adm. Rivero in one, Adm. Holmes and Adm. Christensen in the other. The Hawkeyes flew far out over the Atlantic for some time to demonstrate to the admirals the E-2's electronic systems.



GRAMPAW PETTIBONE

Crippled Crusader

A flight of four F-8E pilots taxied out for section takeoff after briefing for an air-to-air refueling flight. Section clearance was received from departure control and the first section made a routine afterburner takeoff. The second section lined up on the runway and, after being cleared, released brakes for takeoff. After rolling approximately 500-600 feet in MRT (military rated thrust), the section leader gave the afterburner signal and both aircraft went into burner. In a few seconds, the leader noticed his wingman seemed to be falling back and realized he had a burner blow-out when he saw fuel pouring out of his tailpipe.

In order for the wingman to maintain a proper interval, he found it necessary to modulate A/B thrust during initial roll and had decreased power 1-2% at which time he experienced the A/B blowout. He immediately jammed the throttle forward hoping to re-ignite the burner. At this time, he was at an estimated speed of 125 knots with 4000 feet of runway remaining. The throttle was held in this position for one to two seconds. When the A/B did not re-ignite, he went to MRT and held it for a couple of seconds, then attempted to ignite the burner again. When nothing happened, he pushed



the throttle back to MRT and began to rotate for lift-off. At this point, the pilot again attempted a burner relight with no results so he went back to MRT.

The aircraft was now at an altitude of four to six feet and just cleared the Davis barrier at the end of the runway. There was a six-foot perimeter fence approximately 1400 feet from the end of the runway. Just prior to crossing it, the pilot successfully kicked in the burner as the belly of the *Crusader* grazed the fence, but the left gear contacted a six-foot ver-

tical pole, tearing away about 60 feet of the fence.

The pilot climbed out in burner and entered a cloud layer at 900 feet in a right climbing turn. He leveled off at 2500 feet in broken clouds and noticed his oil pressure had gone to "zero." He immediately dropped his RAT (ram air turbine) and notified departure control of his trouble. The flight leader instructed the pilot to dump fuel and land immediately.

The pilot reduced power and began a let-down through the clouds, breaking clear at about 900 feet. When he lowered the landing gear, the nose wheel indicated unsafe so he blew it down with the air bottle.

Just as the pilot entered final, he was notified that the port gear was hanging at a 90° angle, so he waved off for another approach. He maintained good position all the way around and touched down about 3000 feet from the Morest gear. With full right aileron and rudder, he was able to keep the left wing up for 2000 to 2500 feet of roll, but, as the wing fell through, the crippled *Crusader* veered sharply and left the runway just after passing the Morest gear. The aircraft continued across the dirt between two runways, crossed another runway and finally stopped after sliding approximately 1500 feet.

The pilot had secured the engine when he left the runway. After stopping he unlocked the canopy and left uninjured.



Grampaw Pettibone says:

Jumpin' Jehosophat! My knees are still weak after this one.

Seems to me this lad should have done one of two things after he realized he had a burner blow-out: either abort the takeoff and take the gear or remain at full military rated thrust and continue the takeoff. Naturally, the more runway he left behind, the more he needed that afterburner, but takeoff should have been no big problem on a 8000-foot runway at MRT.

It's pretty clear to see that this pilot was bound and determined to re-ignite



Osborn

his burner but can't see how he expected to do it by deselecting for only one or two seconds. Proper procedures for this, like most things in this business, are pretty well cut and dried. Short cuts will get you just one thing—TROUBLE—and plenty of it.

position) approached the destroyer, he reduced throttle and descended to 200 feet at 140 knots. As he passed over the destroyer, he began an easy climb back to his original altitude.

The s-2 pilot (flight leader), who

about this time entered an easy climb.

When the overrunning pilot saw the other pilot begin to climb, he immediately made a steep climbing starboard turn in an effort to avoid a collision—but was too late. Both pilots felt a hard jolt and heard a loud thud as the two aircraft came together.

After some initial communication difficulties, the pilots joined in a loose formation and visually checked both aircraft for damage. En route to home base, they checked the flight characteristics of their aircraft and experienced no control problems. Each of the aircraft made a straight-in approach to a normal landing.

Post-flight inspection revealed both aircraft had received Delta damage in the collision. The flight leader's aircraft had a hole in the underside of the fuselage aft of the bomb bay; the other aircraft had a damaged starboard wing and propeller.



Grampaw Pettibone says:

Great balls of fire! That wasn't a close shave. It was a narrow escape.

There's just no excuse for a thing like this to happen. This flight leader showed about as much sense as a blind gooney bird.

I have no idea what this guy's experience in formation flyin' is, but you can be darn sure that nobody ever taught him to join up this way. There was no reason for him to join on the other aircraft in the first place. If there had been, then the flight most certainly should have been briefed that way.

Briefin' forms were developed for a real good reason. Not usin' them is a gross lack of common sense.

Memo From Gramps

Could you survive? Are you positive that you could survive if you were forced to abandon your aircraft? Do you know your forced landing, ditching, bailout, ejection, parachute separation procedures? Once in the water or on land, do you know how to use your survival equipment—every piece of it?

Take a long hard look at the most important guy in the world, No. 1. If the answer to all those questions isn't a big fat "Yes," you'd better get with it, son, and fast.

All aviation training is aimed at just one thing—COMBAT READINESS. Survival is a big part of that readiness.



*US-2As aren't
Dolphins!*

Foolish Formation

Two US-2A were assigned to conduct an exercise with two destroyers off the West Coast. Prior to takeoff, a short informal brief was conducted between the pilots of both aircraft. A briefing form was not used by the flight leader as required by squadron policy. About the only thing discussed was the possibility of bad weather developing in the exercise area.

The flight leader took off approximately six minutes before the second s-2 and proceeded to the operating area where he rendezvoused with the destroyers only a few miles off the coast. After establishing radio contact, the lead pilot made several low passes by each destroyer to check hull numbers. The second s-2 arrived over the destroyers a few minutes later and also established radio contact.

The destroyers instructed the aircraft to orbit and stand by to commence the exercise in approximately ten minutes. Both s-2 pilots had made individual identifying low passes. After receiving orbit instructions, the #2 aircraft entered a port orbit at 500 feet one mile aft of the destroyers.

Just after entering the port turn, the #2 pilot observed the other s-2 about one mile behind him in a trail position. The port orbit was continued and, as the #2 pilot (in lead

had been flying in a trail position, added power to 2300 rpms and 35 inches during the port turn in an effort to make an unbriefed running rendezvous on the other aircraft. During the descent of the s-2 in the lead position, the trailing pilot allowed his airspeed to increase to around 170 knots which established a very rapid closure rate. As he reached a position just to starboard and above the lead aircraft, he quickly told the lead pilot not to pull up as it was evident he would overrun him. The lead pilot failed to receive the transmission and

scratch TWO!





C-135 AIRCRAFT FOLLOWS PARABOLIC CURVE TO SIMULATE WEIGHTLESSNESS IN ORDER TO GIVE ASTRONAUTS SPECIAL INDOCTRINATION

WHERE NOTHING FALLS WITHOUT A PUSH

IN SPACE nothing falls without a push. You can hold up a Mack truck with a finger. If you drop an anvil, it will not crush your toe. But there are drawbacks. You cannot eat your soup with a spoon. If you kick your shoes under the table, you are likely to find them floating near the ceiling. But let us begin at the beginning and take a look at the strange world of weightlessness.

Weightlessness does not begin until the astronaut is out in space. His ride begins with a shudder of the spacecraft and a roar as the engines ignite. The rocket climbs gradually and as speed increases, the astronaut's "weight" grows. It is as if a man climbs on his chest, then another climbs on that man's shoulder's, and then once more, until a pyramid of seven men are standing on top of the astronaut. Owing to the accelera-

By Dr. Robert B. Voas
NASA Manned Spacecraft Center

tion of the spacecraft, the astronaut's weight has increased seven times. The body of the astronaut may weigh more than one-half a ton. Then suddenly, as the rocket motors are shut down, the pyramid of men leap off his chest. The astronaut feels momentarily as if he were rolling forward as this weight drops away. And then he has no weight at all. He floats up slightly out of his seat—though not far, for he is still strapped in. Where only moments before he weighed over half a ton, he is now lighter than a feather.

What has happened? The change is like that experienced by a man who steps off a diving board. While standing on the board, he weighs, say, 150 pounds. But once he steps

off into space and begins to fall freely, his body has no weight until he hits the water. The only difference between the diver and the astronaut is that the astronaut does not hit water—at least, not immediately. He can go falling on and on for extended periods of time because his speed is so fast that it matches the downward pull of Earth. As he keeps going fast enough to go over the horizon, he keeps falling around and around Earth.

We can think then of the astronaut and his spacecraft as continually falling—falling just over the edge of Earth. Since Earth is round, this falling can keep on for long periods of time. In fact, if he does not slow down his spacecraft by firing retrorockets, he would go on indefinitely. In consequence of being perpetually in a fall, the spacecraft is weightless, and so is everything in it.

What types of problems and opportunities does this weightless condition present for the astronaut and his spacecraft? First, one must deal with liquids in an entirely different way. On Earth, we are used to the fact that water seeks the lowest level. . . . Rivers run down to the sea, and, if your hand slips on the coffee pot, you get a spot on the rug. Not so in space. Liquids do not tend to settle passively in the lowest point. They will not stay in a cup or in a bowl. They do not stay together at all, but break up into fine little bubbles and float around the cabin. Unless we want to live in a fog, we want to avoid getting free liquids in the room itself. Therefore, all liquids must be drunk from closed bottles through straws. Once we get the liquid in the mouth, a system in our bodies pumps the liquid from our mouths to our stomachs.

There is, also, a problem in using liquid fuels for engines. For liquids stored in tanks, some method must be devised for pumping the liquid fuel from the tank into the engine. Normally, the fuel inlet in a car's engine can be put in the lowest point in the tank and fuel will always collect in the bottom of the tank where it is available to the fuel pump. In space, however, the fuel does not necessarily collect at the bottom of the tank. Thus, special methods must be developed to insure that the fuel is brought into contact with the fuel pump. In the Mercury vehicle, the control fuel is pressed around the openings to the reaction jets by a pressurized bladder. As the fuel is used up, the air fills in behind the bladder and continually presses the fuel toward the openings of the tubes going to the reaction control jets.

Just as liquids must be treated differently in a weightless environment, so must solid objects—tools, clothes, writing materials and eating utensils. Anything movable must be tied down or stored where it cannot float away. Since everything is weightless, you don't need a table to put anything on. Are you through with the hammer? Don't put it down, just let go of it. If it isn't pushed, it will stay there until you are ready to use it again. Unfortunately, very slight motions will keep things floating more or less indefinitely, so you are likely to find that the hammer

you left right where it would be handy has floated off into the upper corner of the cabin. This might not bother you immediately since, with a very slight effort, you can float up into the corner and retrieve it. However, it would be unhandy to have all your tools floating about the cabin. At best, you would be accused of being untidy. Further, if you fire the rocket engines at any time, then just as when a car starts, everything will begin moving in the opposite direction and you might suddenly get the hammer between your eyes.

THUS, EVERYTHING must be put away or tied down. On John Glenn's flight, we attempted to tie a string to every movable item he had in the cabin, so that nothing could drift underneath his couch where he could not get it. By the end of the flight with all the strings tied to these objects, he looked as if he held a bowl of spaghetti in his lap.

Perhaps more of a problem than the large solid objects are the particles of dust and debris. Like their large cousins, they float about the cabin and get into the delicate equipment which keeps the spacecraft operating. Because every pound of weight is at a premium in space (it costs about \$1000 to put a pound into orbit), emphasis is placed on miniaturization of all the electronic systems. These miniaturized systems are very sensitive to small dust particles which may be as large as many of the electronic components themselves.

It is therefore important to avoid creating dust or crumbs. The prohibition against eating crackers in bed needs to be extended to the spacecraft. All solid foods need to be packaged in small bite-sized pieces, so that the whole piece can be put into the mouth—and the mouth securely closed—prior to biting into it. Such bite-sized foods have been used on all the Mercury flights. In one instance there was a problem. Someone must have stepped on Scott Carpenter's lunch. At least, when he opened the plastic lunch bag crumbs began floating out. After two or three attempts, he had to give up trying to eat the solid food. After landing, he reported, "It was a *crummy* flight."

To avoid lint in the air, the material worn by the astronauts should have a hard surface finish. The dust

and particle problem also limits the kinds of activities one can do in a spacecraft. Obviously, an astronaut does not want to try to saw a board unless, like the Lone Ranger, he is willing to disappear in a cloud of dust.

There are also problems with gases. We are all familiar with the fact that in the wintertime, the area near the floor will be cooler than the area near the ceiling. This, of course, is due to the fact that cold air weighs more than hot air and so it tends to fall to the floor. Advantage is often taken of this principle of convection in home heating and air conditioning systems, but in the spacecraft, hot and cold air "weigh" alike, namely, nothing at all. Thus, making use of convection in the air conditioning systems for space cabins is out of the question. Initially, there was some concern that this might be a real problem. For example, some wondered whether a match would burn in zero gravity environment. Normally, the carbon dioxide produced by the flame is carried away by the convection resulting from the heat. But in a weightless environment, the carbon dioxide would stay in the same place and collect about the flame, gradually starving it for oxygen and extinguishing it.

An extension of this question was whether human beings in a weightless condition would tend to be poisoned by the foulness of carbon dioxide which they exhale. On earth, convection tends to aid in the disposal of CO₂ since the air that is breathed out of the mouth is generally somewhat warmer than the ambient air. However, the role of convection as a method of moving the respired air is probably relatively small compared to the importance of the pumping action of the lung. In any case, to cool a spacecraft cabin properly, it will be necessary to use fans to move the air actively through the cabin. Since fans must be used in any case, the absence of convection will probably be of little practical significance.

A number of interesting problems arise in moving about under zero gravity. One of the most enjoyable features of weightlessness is that for the first time man can literally fly like a bird. But, unlike the bird, he need not even flap his arms. A slight push off the floor starts you rising. You will continue to drift slowly upward

until your head bounces lightly against the ceiling. At least, that will be the procedure if you are experienced in moving about in a weightless environment. The inexperienced may try to use the same force in his jump that we would use on earth. In that case, he is likely to wind up with his head sticking through the ceiling. If you wish to get from one side of the room to the other, one slight push with the foot will make you drift slowly across the cabin. The emphasis is on using much less power than we normally use in taking a step for jumping or moving about. Our bodies have no weight; we only need to get them started moving and they move indefinitely until we come into contact with something to stop us.

The sensation is something like that of swimming. You push off with your feet and glide along underwater for a short distance until the friction of the water stops you. In space, there is nothing to create friction except the air in the cabin itself, and this is negligible. Another major difference between floating about in the cabin of the spacecraft and floating about under water is that suspended in water, you can always get into motion again by swinging with your arms and kicking your feet. Suspended in the middle of the spacecraft cabin with nothing to push against, you will not be able to get into motion, for the air in the cabin is too thin to give you anything to push against as the water does. You will hang in the middle of the air until some one comes over and rescues you. Thus movement from one place to another in space must be done by pushing off one object to get started and running into another to stop.

If there is no object to push off from, then you must make use of a rocket motor. You can use a rocket motor to drive you about in space as long as you are able to point it accurately, so that it moves you in the direction that you want to go. But this is much more difficult than it might seem to be at first. The problem lies in aiming the rocket correctly. The force of the rocket must not only be applied in the correct direction but also to the proper point on the body. If, for example, the rocket were attached to your hat, you would not move forward at all when it fired. You would spin around



BECOMING THE WELL-FED ASTRONAUT IN SPACE IS NOT EASY; PRACTICE IS NEEDED

head over heels and perhaps not move at all in the direction in which you wish to go. If the rocket were attached to your shoes, your feet would be propelled up and over your head. You would go tumbling over and over without making any headway. Thus, the rocket thrust would have to be slung elsewhere.

Properly oriented, the rocket would propel the astronaut forward toward whatever point he wished to get to, but initial studies have indicated that maneuvering with such a rocket is difficult.

One of the novel problems in self-propulsion is that the astronaut has to keep in mind that he must use the rockets not only to get himself started moving but also to stop. On the ground, friction slows us down. Thus, in a car, if you take your foot off the gas, you gradually come to a stop. Not so in space. Once you have begun moving, you will continue moving at the same rate indefinitely unless you put on the brakes. But there are no brakes, since there is nothing against which to press to produce friction. The only way to stop is to run head on into another spaceship or, more safely, to use rockets to stop with. This is done by reversing the direction in which they were initially fired, and firing for the same period of time as was used to get you started moving.

Thus, when an astronaut, who has been floating around out in space, decides to return to the mother ship, he needs to keep in mind that he must save enough fuel so that, as he approaches the ship, he can slow himself down and come to a stop. Otherwise, he will be bound to make his mark on the side of the spaceship. While maneuvering in space, the body has no weight, but it does have mass. If one runs into the side of the spaceship at 40 mph, one can expect it to feel exactly like running into the side of a brick wall at that speed with the same disturbing consequences.

The weightlessness of the body also has other interesting effects as, for example, when one attempts to use tools in space. Driving a nail is disconcerting: every time a blow is struck on the nail, the hammer and man float backwards away from the nail unless he is tied to the wall. That is due to Newton's third law of motion—that for every action, there is an equal reaction. Nor can the problem be solved by switching from nails to screws, since, as you turn the screwdriver, it remains stationary and your body rotates around with each turn unless again you are tied down.

Two solutions to these problems have been proposed. One, of course, is to tie the man down to the wall in such a way that he cannot move as he operates the tools. Another pro-

cedure is to develop tools where two forces work against each other so that there is no resultant force to move the body. Such a tool is a pair of scissors where the top and bottom blades are forced against each other. A man, even if he is not tied down, can operate tools like this successfully.

In the general field of orbital dynamics, the general principle is that objects circling Earth at orbital velocities go faster when they are closer to the surface of Earth and slower when they are farther away. The practical difficulties that this imposes can be illustrated by thinking of the case of the astronaut who is working out in space attached at the end of a 100-foot line to the spacecraft. If the man has been working out in front of the spacecraft, a tug will slow him down relative to the speed of the spacecraft. As it slows him down, he drops to a lower orbit. He will pass underneath the spacecraft until he is being pulled along behind the spacecraft. However, the pull of the spacecraft will speed him up again and bring him back up to a higher orbit in which he will pass over the spacecraft until it stops him again and he goes slower until he slows down again and falls into the orbit below the spacecraft and so on. Through this procedure he circles around and around the spacecraft in gradually decreasing circles, moving more and more rapidly until he spins around the spacecraft and wraps the 100-foot rope around himself. Obviously, reeling a man in by a rope is not a thoroughly satisfactory method of maneuvering in space. For short

distances it may work out, but for long distances, it could become a disaster.

Consider, for a moment, the problem of orientation under conditions of weightlessness. On Earth, if we feel that an individual is confused, we are likely to say that he does not know which way is up. The concepts of up and down are so basic to our lives that the ultimate confusion seems to us to be the inability to distinguish between up and down. Yet, in space, the concepts of up and down are without meaning since they refer primarily to gravity. The human being senses gravity by a number of methods: by means of a little sense organ that lies in the inner ear, by means of sense organs that are in the muscles which keep the body vertical against the force of gravity and finally by means of sensors in the skin, particularly in the seat of the pants and on the base of the feet.

In space, these sensors provide no information. With eyes closed, a person has no way of knowing whether he is right side up or upside down, lying on his back or on his side. At first glance, this might seem to be disturbing. Some scientists were concerned that since being weightless was like falling—as in the analogy we made earlier to the man diving off the diving board—that individuals who are weightless might feel as if they were falling all the time. The sensation might be like the one many of us have had in dreams that we were falling, falling, falling. Actually, to date, the experience of the astronauts and of others who have experienced

weightlessness in aircraft has indicated this does not occur. Under weightlessness, you do indeed have no way of telling which way is up as long as your eyes are closed or you have no visual cue. But, on the other hand, you do not feel that you are falling. This sensation is, if anything, the feeling of floating.

Weightlessness has a number of implications for daily living. First of all, one does not need to sit down to rest his legs or lie down to go to sleep. The body does not need to be supported in order to be relaxed at all times. You can walk on the ceiling just as easily as on the floor. There has been some concern that this might be disturbing to a man since all of our lives we have learned that floors are for walking on and that ceilings are not. Psychologists were concerned that, even though it would make no difference in space, it still might be disorienting and annoying to be unsure which was the floor and which was the ceiling. It has been proposed that the upper parts of the space cabin be painted light and the lower parts dark to remind us which is which.

Clothing styles will have to be adapted to the weightless environment. Whether walking on the ceiling or on the floor, skirts are not likely to stay down around the knees but will float about at any position. It will be necessary for lady astronauts to go in for slacks, lounging pajamas and Levis, rather than skirts. Hats will also be unpopular, since they will tend to float off the head, unless—like bonnets—they are tied under the chin. Pocket handkerchiefs will be out since they would tend to float out, while tie-clips will be worn at all times to keep the tie out of the eyes. Bobby pins, which might fall out of the hair and float around the cabin will be discouraged. Securely fastened hairnets would be acceptable.

The adaptation in clothing required for weightlessness is not major at this time. Neither are the adaptations required of the man. Some small changes may need to be made, but there is little doubt that Man will take to this new experience as he has to all his past great adventures a tremendous curiosity coupled with a broad adaptive capacity which will insure his ability to work effectively in space where nothing falls without a push.



ASTRONAUT JOHN YOUNG GETS LUNAR GRAVITY TRAINING AT WRIGHT PATTERSON AFB

NAVAL AVIATOR NUMBER ONE HONORED

By Lt. Rosario Rausa, USNR

ON DECEMBER 17, 1964, the first man to be designated a Naval Aviator was posthumously honored for his pioneer achievements by the National Aviation Hall of Fame in Dayton, Ohio. Cdr. Theodore Gordon Ellyson thus joined the revered company of such men as Octave Chanute, Frank P. Lahm, Benjamin D. Foulois, Samuel P. Langley, Glenn H. Curtiss, John J. Montgomery, Thomas S. Baldwin, Henry W. Walden, Calbraith P. Rodgers and Orville and Wilbur Wright—men who dedicated their lives to making the world of flight what it is today.

There are few living persons who knew T.G. Ellyson and his pioneering accomplishments in aviation. But one who did share his triumphs and can speak with the authority of one who witnessed many of them is Mrs. Ellyson, the pilot's widow. She is a spry, petite woman in her seventies, now living in Washington, D.C. Interviewed recently by *Naval Aviation News*, she called upon a myriad of her vivid memories of those days she shared with the man who, she said, "liked being first" and was driven by the desire to do "something somebody else hadn't done."

Cdr. T. G. "Spuds" Ellyson loved the Navy so much that he once told his wife, "Even you come second." Which was all right with Mrs. Ellyson. "He so impressed me," she said, of the time they met at a wedding reception, "that we were married two weeks later."

"It was 1912," Mrs. Ellyson went on, "and he was going up for a second try at the catapult shot. The first one had failed and he said I must marry him to bring him luck. Well, evidently I did, because his second effort was successful. This happened one week after we were married in Alexandria, Virginia."

The real saga of Navy pilot number one began in 1899 when, at the age of 14, young Ellyson was taken on a trip by his father from their hometown of Richmond to Hampton Roads, Va. There Ellyson saw a fleet of American Navy ships majestically enter the harbor, their officers and



THEODORE GORDON ELLYSON, recently inducted into the Aviation Hall of Fame at Dayton, Ohio, was a Lieutenant in 1911 when he was taught how to fly by pioneer Glenn Curtiss.

men busy on the decks preparing for anchorage. Ellyson, moved to exhilaration at the panoramic sight, promptly decided that the life of a Navy man was for him. Shortly afterwards, though discouraged by his father, Ellyson boarded a northbound train out of Richmond with the intention of seeking enrollment at the Naval Academy in Annapolis.

"He was wearing knickers," said Mrs. Ellyson, "but as soon as he boarded the train he went into the men's room, disposed of them and put on a pair of long pants he'd purchased."

At Annapolis an official asked him why he wanted to become a Naval Officer. Ellyson's succinct reply was spoken deliberately and without hesitation: "I saw the Fleet come in."

He enrolled at the Werntz prep school nearby and studied there for a year. He was then appointed to the Academy from Virginia's Third District. The year was 1901. He was graduated four years later at the age of 19 and put out to sea for his first real taste of ocean-going life. In the next half-decade, Ellyson served in a number of ships of the surface Navy



AFTER FIRST successful catapult shot, Lieut. Ellyson poses with his bride of a week.

in the Caribbean and the Far East.

Then in December of 1910 the wheels began to turn, sparking a series of events which were to cause the birth of aviation in the Navy. Aircraft designer Glenn Curtiss had offered to teach a Navy man how to fly free of charge. The Bureau of Navigation subsequently received an order from the Secretary of the Navy, George von L. Meyer. It read in part, "The Bureau will select an officer to undergo instruction in aviation. . . . Selection should be made with a view to his special physical and professional fitness, having in mind the probability of subsequently detailing him as an instructor in aviation. . . . He should be apt in the study and handling of gas engines, possessed of good nerve and mental balance and be endowed with the adaptability of a seaman."

Lt. Ellyson, one of many who had volunteered for this duty, was chosen. He was sent to California where, at North Island with Mr. Curtiss, he began to fly. His achievements, as monumental in significance now as they were then, helped lay the foundation upon which the structure of Fleet air power stands. The citation read at the award ceremonies last month in Dayton best summarizes those achievements and is quoted in part here: ". . . In 1911 he participated with others in the first landing and takeoff from a ship, in the first successful seaplane flights, and in the first seaplane operations with a naval vessel. He also soloed in 1911. . . . On July 1, 1911 Ellyson flew the Navy's first seaplane, the A-1, off of

Lake Keuka, New York, and on July 3 made the first night flights by a Naval Aviator. . . . He assisted in the search for a shipboard launching device for airplanes and on September 7, 1911, made a successful takeoff from an inclined wire cable device. In 1912 further development led to his successful catapult launching in a seaplane on November 12, and in the Navy's first flying boat in December."

Ellyson's view of the horizon was not limited to that from a cockpit or a battleship's bridge. He went on to the submarine service and went below the surface of the sea. Later, he received the Navy Cross for service in WW I when he was attached to the Commander, Submarine Chaser Detachment One.

Cdr. Ellyson, as would be expected, was an inspiring example of an officer. "He was dedicated," Mrs. Ellyson said, "and had earned the intense loyalty of his men." Physical fitness was also very important to him. "He was six feet tall," Mrs. Ellyson commented, "and weighed the same at his death as he did as a midshipman."

In 1928, Mrs. Ellyson was home at Annapolis with her three daughters while Cdr. Ellyson was acting C.O. of the carrier *Lexington*. Word came to him that one of their children was desperately ill (she later recovered). Obtaining a plane at Norfolk with two pilots assigned to go with him, he launched at night for the flight to Annapolis. At two in the morning of February 27th, Ellyson's 43rd birthday, the aircraft crashed in

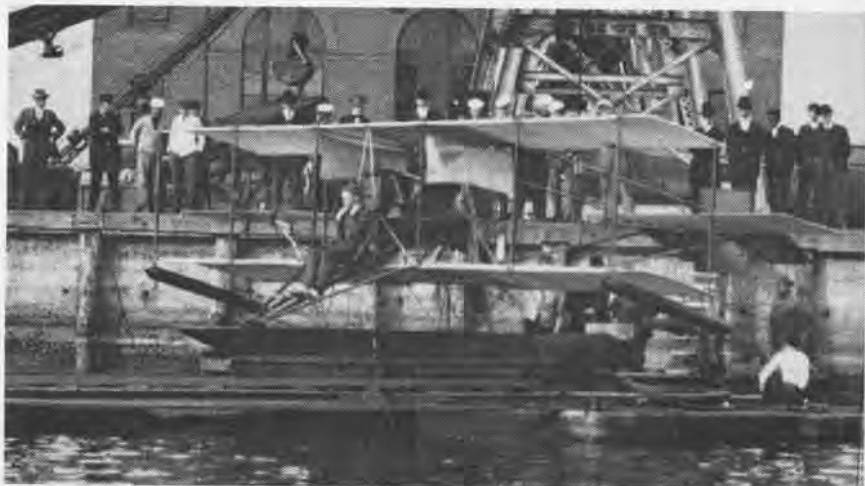


PILOT'S WIDOW says, "He liked being first." Here, Ellyson is at controls of Curtiss "D."

Chesapeake Bay killing all three men.

Mrs. Ellyson, through the years, has viewed flight operations from aboard modern aircraft carriers, and when asked her opinion on the progress of today's Navy, could only say, "Tremendous!"

Surrounded by her momentos, Mrs. Ellyson is eager to reflect on those bygone days and is warmly proud of her husband's accomplishments. But, of more significance, she feels, is the spirit of the man who just had to be "first." The evidence of this spirit is dramatically demonstrated when one remembers a crude seaplane, braced precariously by little more than piano wire, pattering forth for takeoff on Lake Keuka, and a *Vigilante* screaming high and hot at 30,000 feet over the Mediterranean.



ELLYSON READIES himself in "cockpit" of A-3 before historic catapult launch at Washington Navy Yard. First attempt in an A-1 at Annapolis resulted in a crash; Ellyson was uninjured.

MARINES SAVE VIETNAM FLOOD VICTIMS

THE WIND-DRIVEN rain whipped through the screens into the darkened ready room at Da Nang, Republic of Vietnam, and soaked the pilots being briefed by LCol. Joseph Koler, Jr., Commander of the Marine helicopter squadron. Pulsating engines broke the gloom and caused eddies of water on the runway as the first choppers took off into the sky of Typhoon Joan to begin rescuing hundreds of flood stricken Vietnamese.

Heroism was common among Marine helicopter crew chiefs and gunners as they descended by cable from their aircraft into the swift current 70 feet below to search for stranded women and children. While the helicopters hovered over the house roofs, Viet Cong guerillas attempted to shoot them down, but Marines continued to collect their precious cargo.

Hour after hour they brought in the homeless and hungry victims. Each returning plane was met by Col. John H. King, Task Element Commander. Marines stood in the rain at Da Nang to assist the waterlogged survivors.

One mother, with an infant in her arms, frantically told an interpreter of her other two youngsters still trapped in the attic of their home. Their plight was radioed to a nearby helicopter and an attempt was made to reach them, but darkness and 30-



VIETNAMESE WOMEN AND CHILDREN AWAIT RESCUE BY U.S. MARINE CORPS HELICOPTER

knot winds forced a postponement.

When the last survivors were safe, Marines who remembered that this day was the 189th anniversary of the Marine Corps, brought their traditional birthday cake (originally scheduled for a ceremony later) to the flight line and saw to it that each child was given a piece of that special confection.



CREW CHIEF HELPS REFUGEE WOMAN, SON



FLOOD VICTIMS LEAVE COPTER AND HURRY TO SHELTER WHERE FOOD IS AWAITING THEM

In more wind and rain, Marines took off again at dawn to continue the day-long evacuation. Flood waters were still rising and everyone in danger was brought in for shelter. The pilot, who had brought back the mother of the missing children the night before, flew back to the same area. He found them safe in a house with five other children.

When the last Marine helicopter landed at day's end, and a final tally for both days had been taken, the flying Leathernecks had rescued more than 1700 from the flood waters.

Vietnam Pilots Trained VA-152, Det. Z, Shows A-1H Use

LCdr. W. C. Bailey, Officer-in-Charge, Attack Squadron 152, Det. Zulu, recently presented an A-1H/J qualification certificate to Aspirant Vo Anh Tai, Vietnamese Air Force. The VNAF A-1 training program is conducted in the Republic of Vietnam. The program familiarizes the VNAF pilots with the *Skyraider* and its tactical employment.

The Detachment, comprising U. S. enlisted personnel, officers and *Skyraider* aircraft, have flown close to 1000 hours per month advising and training the Vietnamese Air Force to prepare pilots for the conflict with the Viet Cong communist forces.

Symposium on Citizenship Officers Meet at Corpus Christi

A three-day officers' symposium on "The Challenge of Citizenship and Leadership" proved a highly effective approach to leadership training at NAS CORPUS CHRISTI.

Lt. Don Little, station Training Officer, planned the symposium. A number of community leaders gave their time to speak, relating their various fields of endeavor to problems of leadership within the Navy and of citizenship in the community. Approximately 100 officers attended.

Nueces County (Corpus Christi) Judge Noah Kennedy, Jr., Del Mar College President Grady St. Clair, and Juvenile Court and District Judge Paul A. Martineau were among the leaders.

Military speakers included RAdm. F. A. Brandley, Chief of Naval Air Advanced Training; Capt. F. L. DeLorenzo, Commanding Officer of the air station; and Cdr. John Thornton, CNATRA Staff Leadership Officer who spoke of his experiences as a POW in Korea.

Lemoore's Last A-4B Sortie Bravos Traded in for the A-4E's

Lt. J. P. McDonough of VA-164 completed the last sortie flown in the A-4B at NAS LEMOORE. VA-164 has completed its transition from the A-4B to the new A-4E.

The VA-164 *Ghostriders* received their first A-4B on October 7, 1960. The squadron obtained its full complement of 12 A-4B's on April 1, 1961.



THE LAST OPERATIONAL F-3B Demons in the U. S. Navy were retired by VF-161, bringing to a close an era in Naval Aviation which lasted nine years and saw 519 Demons delivered to the Fleet. To honor the Demons, Cdr. W. J. Welty, C.O. of the squadron, and LCdr. L. D. Baldridge, Jr., Executive Officer, taxied the last two McDonnell Demons past the assembled men of the squadron. At the same time, VF-161 welcomed the first Phantom II's delivered to the unit.

In September 1961, VA-164 moved to NAS LEMOORE from NAS CECIL FIELD. The squadron completed two full cruises aboard the USS *Oriskany*. The *Ghostriders* are one of the last Fleet squadrons to fly *Bravos*.

Fresh-1 Accepted by Navy To Be Used to Test Other Programs

Fresh-1, the world's fastest hydrofoil, was accepted by Navy in November after it completed a stringent series of dynamic test runs on Puget Sound. Capt. R. E. Harris, Supervisor of Shipbuilding in Seattle, accepted the craft for the Navy.

The craft was designed and built for BUSHIPS by the Boeing Company.

The 15-ton, twin-hulled craft is expected to reach foilborne speeds in excess of 100 mph. It will be used to test a variety of foil shapes and arrangements.

In its most recent tests, *Fresh-1* underwent extensive exploration of its operating characteristics. These include electronic excitation of the craft's control systems to simulate rough-water operating conditions.

Additional hydrofoil system-research programs are in progress here and elsewhere under direction of the Bureau of Ships. Over the next several months, *Fresh-1* will be modified to evaluate promising systems developed under these research programs.



LCDR. CLAUDE WHITTLE, pilot at NAS Corpus Christi, shows his affection for the air station's new turbine-powered helicopter, the Kaman UH-2B Sea Sprite. The reliable but aging H-19 shown in background has been with the Navy since 1952 and will soon be retired. Another Sea Sprite is expected at the Texas base to join the first in performing search and rescue duties. Corpus Christi serves as the headquarters for the Advanced Training Command.

TEST PILOTS VISIT ENGLAND AND SWEDEN

SOMETHING new was added in the exchange of information on testing aircraft in the Free World when a group of Test Pilots from the Naval Air Test Center, Patuxent River, Md., headed by the Director, U. S. Naval Test Pilot School (USNTPS), Cdr. Nicholas J. Smith, III, visited England and Sweden. The school staff members and the newly graduated Class 37 were guests of the Empire Test Pilots' School (ETPS) at Farnborough, England, and the Royal Swedish Air Force Flight Center at Malmsslatt. It was the first visit to Sweden by representatives of the school. The programs in both countries were well organized and the hospitality was outstanding.

In England, several briefings were given on all phases of the syllabi; these included organization of the school, flight and ground curricula and scheduling procedures. Lectures by members of the Royal Aircraft Establishment, Bedford, described "The Slender Delta Plan Form Wings" and "The Handling Qualities of the Handley-Page 115," a vehicle built to test the slow speed characteristics of the slender delta wing concept.

Each staff member and graduate had the opportunity to discuss in detail with his counterpart the test techniques and procedures and the different methods of data acquisition. The program provided for approximately 35 flights, both dual and solo, in ETPS aircraft. These included the *Scimitar*, *Chimpunk*, *Viscount*, *Dragonfly*, *Hunter*, *Meteor*, *Provost*, *Devon*, *Scout* and *Whirlwind*.

On a trip to the Hawker-Blackburn Division of Hawker Siddeley Aviation, Ltd., at Dunsfold, the test pilots witnessed a portion of a scheduled test flight on the P.1127 and an impressive flight demonstration of a Hawker *Hurricane* of WW II fame.

To forge the bonds between the two schools, the Commandant of ETPS presented a plaque made from oak timbers and copper nails from Lord Nelson's flagship, the *HMS Victory*. The award is to be presented to a member of each graduating class at USNTPS, who submits the best "Navy Preliminary Evaluation."

At the Flight Center of the Royal Swedish Air Force, the program open-



GROUP CAPTAIN R. A. Watts, of Empire Test Pilot School, presents a plaque to Cdr. Smith, which is to honor annually the USNTPS student producing the best "Preliminary Evaluation."

ed with a series of discussions on the RSAF's mission and responsibilities in the Swedish defense posture. This set the stage for explaining the RSAF system of procurement.

In flight, the J-35D *Dragon* fighter demonstrated low level, high speed, high maneuverability work. A demonstration of an operational turnaround of two J-35's included fueling, re-arming and line maintenance in record time. Opportunities were afforded both the Director of USNTPS, Cdr. Smith, and the Assistant Director, Cdr. F. M. Posch, to fly the trainer version of the J-35. All visitors were allowed to inspect the complete stable of aircraft which consisted of the SAAB J-29 *Flying Barrel*, a J-32 *Lance*, J-35 *Dragon* and the 105 trainer.

An excursion to the SAAB plant at Linköping demonstrated some of the contractor's test programs. Swedish production line methods were observed and the skill behind the products was obvious.

Visits such as this are a valuable, although only a small, part of a test pilot's educational program. After eight months of work, consisting of approximately 400 classroom hours and 120 hours of simulated test flying in nine types of aircraft (T-28B to F-8B) and the writing of some 30 flight reports, the test pilot student

welcomes an exchange of information with his opposite number abroad.

The U. S. Naval Test Pilot School is changing in order to keep ahead of changing requirements. Aviators of all types are needed: fighter, attack, anti-submarine or helicopter-qualified pilots.

The school at Patuxent has taken on not only a tri-service, but also an international, air. Current enrollment includes pilots from the U. S. Navy, Marine Corps, Air Force and Army, Royal Canadian Air Force, RSAF, and civilian contractors.

A move to cross-pollinate the test techniques of the U. S. with our British counterparts has been the addition of Lt. Dwight Timm, USN, an ETPS graduate, to the USNTPS in the flying qualities phase.

The concept of currency is enhanced by the "Sabbatical Loan Program." Leading aircraft and engine manufacturers send an engineer through the academic phase of TPS. Then the engineer remains as an instructor in his specialty for a time.

Completion of either the fixed or rotary wing curriculum at the U. S. Naval Test Pilot School at Patuxent leads to rewarding tours of duty for the Navy or Marine pilot with the requisite qualification. Such a tour ranks high from an educational standpoint and gives the aviator the opportunity to fly a diversity of aircraft.



A BLAZING AIRCRAFT IS PUT OUT BY USING LIGHT WATER AND PURPLE K DEVELOPED BY THE NAVAL RESEARCH LABORATORY

NRL SCIENTISTS EXPEDITE FIRE FIGHTING

A RADICALLY new double-barrelled method of combatting fires developed by scientists at Naval Research Laboratory, Washington, D. C., is now being used by crash and rescue crews at Pensacola.

NAS PENSACOLA is the first Navy installation to use the method. It combines a new fluoro-chemical form called "Light Water" and Purple K, a potassium bicarbonate base dry chemical.

The new technique was introduced by a three-man team from NRL,

headed by Dr. Richard Tuve who spearheaded its research and development. Dr. Tuve is shown below with Jack Ransom, a civilian member of the fire department at NAS PENSACOLA.

The two flame-quenching agents are applied simultaneously through twin nozzles. When sprayed on a blazing gasoline or oil fire, the Purple K immediately extinguishes the blaze, while the Light Water instantly coats and vapor-proofs the fuel and thereby effectively prevents re-ignition.

Combined use of Light Water and the dry-powdered Purple K requires only a slight pass over the flaming area instead of the complete flooding and saturation needed by most existing foam agents.

The Light Water foam has other important characteristics, according to Dr. Tuve. It takes only one-fourth the volume compared to protein-air foams currently used Navy-wide to secure a given fire area. This means that equal weights of Light Water and Purple K can do a faster job.



ONE HOLDS NOZZLES; OTHERS MAN HOSES



IN JUST SECONDS THE FIRE IS PUT OUT



DR. TUVE EXPLAINS NOZZLES TO RANSOM



USS KITTY HAWK (CVA-63) is viewed here in October 1962 during her first Far Eastern tour with the Seventh Fleet. Embarked was ComCarDiv 7. Assigned to NavAirPac are nine attack aircraft carriers, with a tenth, the America, due to join them after commissioning.

The Modern Aircraft Carrier

CARRIERS IN THE COMPLEX MODERN FLEET

'Many of our citizens take seapower for granted, never surprised when Navy ships turn up in various hot spots around the world. I hope our naval presence will always be available, but I emphasize that seapower is so important to our nation that it must never be neglected or underestimated. There is an immense penalty attached to failure to understand the use of the sea and the need to control it. A modern Navy is one that can take care of any situation which might arise.'

—Adm. David L. McDonald, Chief of Naval Operations

AS IN THE TWENTIES, the decade following the formal surrender of Japan saw a steady decrease in the size of the Naval air arm and its power capacity. The shrinking inventory of heavier-than-air craft dropped from 40,912 in 1945 to 13,473 in 1951. In the same period, aircraft carrier strength dropped from 99 to 16.

But in that last year, 1951, the pendulum of power was already swinging in an upward arc. International tensions had warmed a cold war into a decidedly hot one in Korea during 1950. U.S. Naval Aviation

By Scot MacDonald

was applying effectively in the post-WW II years the lessons learned in combat. These, along with impressive advances in the fields of electronics, missile and nuclear bomb striking power, were cranked into new aircraft carrier construction which provided the Navy with the *Forrestal* class carrier and the nuclear-powered *Enterprise*.

Successful employment of the new aircraft carriers, as well as those of aging classes, was made possible by

effective integration in the Fleet. This was done by an efficient organization which, with few innovations, was essentially the same as that worked out during World War II. The Navy continued to apply its naval forces around its aviation forces.

In the current organization of the Navy, the type commanders (ComNavAirPac and ComNavAirLant) are responsible for the training and readiness of the aviation arm. They are responsible to their respective Fleet commanders (CinCPacFlt and CinCLantFlt). All attack carriers

(CVA's and CVAN-65) are under the administrative command of the respective type commanders.

Assigned to NavAirLant are the *Enterprise*, *Forrestal*, *Independence*, *Franklin D. Roosevelt*, *Saratoga*, and *Shangri La*. Both *America* and the *John F. Kennedy* are slated for NavAirLant control upon commissioning, although the *America* is scheduled to transfer to NavAirPac.

Assigned to NavAirPac are the attack carriers *Bon Homme Richard*, *Constellation*, *Coral Sea*, *Hancock*, *Kitty Hawk*, *Midway*, *Oriskany*, *Ranger*, and *Ticonderoga*.

Because of ASW lessons learned in WW II and rapid advances in submarine capabilities, combined with missile potential, an emphasis on ASW was basic to the continued effectiveness—if not existence—of a super auxiliary air navy. On April 11, 1958, RAdm. (now VAdm.) John S. Thach issued the first operation order to Task Group *Alfa*, formed in the Atlantic Fleet to accelerate the development of antisubmarine tactics and to improve Fleet readiness in antisubmarine warfare. Thach's command pulled together various ASW elements already operating in the Fleet.

The following October 15, Antisubmarine Defense Groups *Bravo* and *Charlie* became operational in the Atlantic Fleet, with missions to develop

tactics, doctrine and equipment along lines paralleling the work of Task Group *Alfa*.

On March 1, 1960, Antisubmarine Defense Force, U.S. Pacific Fleet was established under VAdm. Thach, headquartered at NAS FORD ISLAND. Nearly seven years earlier, on July 8, 1953, the classification, "Anti-submarine Support Aircraft Carriers," designated CVS, was established for attack carriers assigned to submarine warfare. One month later, in August 1953, five CVA's—*Enterprise* (CVA-6), *Franklin* (CVA-13), *Bunker Hill* (CVA-17), *Leyte* (CVA-32), and *Ani-etam* (CVA-36)—were redesignated CVS and assigned the new mission. Since the ComASW Atlantic and Pacific commands were established, all CVS-designed aircraft carriers have been assigned to the operational control of either the Atlantic or Pacific ASW Forces commands.

In the Pacific Fleet, presently assigned to ASW force commander, are *Bennington*, *Hornet*, *Kearsarge*, and *Yorktown*. The Atlantic Fleet ASW commander now controls *Essex*, *Intrepid*, *Lake Champlain*, *Randolph*, and *Wasp*. *Lexington*, now undergoing overhaul, is under the operational control of the Chief of Naval Air Training, for flight training purposes.

A WW II escort carrier, the *Thetis Bay*, entered into a new conversion

program on July 1, 1955, to effect a Marine Corps tactic of vertical envelopment. The carrier was reclassified as an Assault Helicopter Aircraft Carrier and redesignated CVHA-1. She was redesignated LPH-6 on May 28, 1959. The LPH designation was first applied to the *Block Island* (CVE-106). Her conversion was cancelled in February 1959 and the LPH-1 designation was not reassigned. In the designation, the "L" indicates an amphibious force ship, the "P" a troop transport, and the "H" a helicopter transport.

Since then, three CVS's, the *Princeton*, *Valley Forge*, and *Boxer*, have been converted to LPH's. All LPH's are assigned to the operational control of the Atlantic and Pacific Amphibious Force commands. In the Atlantic are the *Okinawa*, *Guadalcanal*, and the *Boxer*. In the Pacific are the *Iwo Jima* (the first LPH to be built as such, from the keel up), *Princeton*, and *Valley Forge*; the *Guam* will be added when she is commissioned.

The Pacific Fleet command is geographically divided into two separate Fleets responsible to CinCPacFlt, the Seventh Fleet and the First Fleet. The *ComServPac* Bulletin of October 1964 describes them:

"The Seventh Fleet is composed of all the operating Navy and Marine Corps forces in the Western Pacific, as well as their mobile support forces. This constitutes a balanced sea, air and land force of approximately 125 ships, 650 aircraft, and 64,000 men.

"These combined forces serve to fulfill the Seventh Fleet's four basic missions in the Western Pacific: as a deterrent and ready force against aggression; to provide training to our friends and allies in WestPac; to strengthen friendship with our allies through personal contact with the forces involved; and to provide rescue and humanitarian services in accordance with the age-old traditions of the sea.

"The other major operating subdivision of the Pacific Fleet is the First Fleet, operating in the Eastern Pacific (primarily the West Coast of continental U.S., Hawaii and the mid-Pacific). The First Fleet is also an integrated striking force but spends a good deal of time and effort on training and readiness operations. Ordinarily, however, Pacific Fleet ships rotate between the First and Seventh Fleets."

All aviation units in the Atlantic



USS INTREPID (CVS-11) sails through Western Atlantic waters while preparing to launch SH-3A helos during an exercise. CVS carriers are assigned to ASW Atlantic and Pacific Forces.



TASK GROUP ALFA, formed in 1958, conducts extensive training exercises to develop tactics and increase proficiency in combatting potential submarine threats to the U.S. coastal areas.

and Mediterranean are responsible to CinCLantFlt. In these areas are the Second Fleet in the Atlantic and Caribbean, and the Sixth Fleet in the Med. ComNavAirLant exercises administrative control over the two. LCdr. T. A. Loomis, in a June 1963 NANews article, stated:

"ComNavAirLant is involved administratively with more than 150 subordinate commands. These include 16 ships (12 of them aircraft carriers), 110 aircraft squadrons, 2000 aircraft and 60,000 men. As an air type commander in the Atlantic [he] reports directly to the Commander in Chief, U.S. Atlantic Fleet, at his nearby headquarters in Norfolk, Va.

"CinCLantFlt splits the Fleet up into several forces. . . . Subordinate operational commands are the Second Fleet, the Antisubmarine Warfare Force, the Amphibious Force, and the Fleet Marine Force." The CVA's are assigned to the Second Fleet, rotating with Commander in Chief, U.S. Naval Forces, Europe's (CinCUSNavEur's) Sixth Fleet, the CVS's to the ASW forces, and the LPH's to Commander, Amphibious Forces, Atlantic.

The Sixth Fleet operates in the Mediterranean Sea, controlling an area of great strategic interest to NATO nations—the southern part of Europe, western Asia, and the northern areas of the Middle East. The Med permits the Sixth Fleet to exploit its mobility and flexibility while shifting its striking force in tactical operations incident to carrying out its NATO and national responsibilities.

An April 1963 article in NANews takes a closer look at the Sixth Fleet:

"In the organization of the Fleet, carriers and embarked air groups are assigned to Task Force 60 whose commander is the currently embarked carrier division commander. Normally, two attack carriers, including at least one *Forrestal* class, are assigned to the Fleet. Two cruisers and about 20 destroyers are assigned in support of the CVA's. Task Force 60 is, in turn, organized into two operating task groups, which become Task Group 60.1 and 60.2, often referred to as the 'Blue' and 'Gold' groups. A carrier is assigned to each group."

Equivalent to Task Force 60 in the Seventh Fleet is Task Force 77.

Task Forces 61 and 62 are the Sixth Fleet's amphibious force. This consists of a squadron of amphibious shipping, with a reinforced battalion of about 2000 combat-ready Marines embarked. Task Force 63 is the Sixth Fleet's Service Force.

Periodically, and in time of crisis, the Sixth Fleet is augmented by a special force known as the Anti-submarine Force (Task Force 66). A similar augmentation occurs in the Seventh Fleet under these circumstances. Task Force 66 consists of a CVS with a specialized air group embarked and is accompanied by destroyers. Its job is to seek out and destroy enemy submarines.

The Sixth Fleet also has responsibilities under NATO. In the U.S. chain of command, this fleet is a subordinate operational command of Commander in Chief, U.S. Naval Forces Europe, a four-star admiral whose headquarters are in London.

When the Sixth Fleet operates in its NATO capacity, it is known as Naval Striking and Support Forces, Southern Europe, and the Fleet commander reports to the Commander in Chief, Allied Forces, Southern Europe (CinCSouth), the NATO commander whose headquarters are in Naples.

As already indicated, the four fleets—First, Second, Sixth and Seventh—are further divided into task forces, a mixture of ships, including aircraft carriers, organized for a specific purpose.

In the Pacific's Seventh Fleet, for instance, is Task Force 72, operating near Taiwan. "The purpose of this command," defines the *ComServPac Bulletin*, "is to detect enemy forces attempting to invade Taiwan, conduct reconnaissance, and to assist the Chinese Nationalists with their training."

Many of the task forces are of a temporary nature, disbanded and regrouped when the particular missions are accomplished, even though the Task Group designations in the respective fleets are fairly permanent. It's the composition that is flexible and some task forces have only a temporary existence. Instances:

Task Force 135, commanded by Rear Admiral Frederick J. Brush, was organized September 11, 1961, and ordered to the Galveston-Freeport area of Texas for disaster relief operations in the wake of Hurricane *Carla*. It was composed of the carriers *Shangri La* and *Antietam*, two destroyers, an attack transport and two Fleet tugs.

In April 1964, Task Force 90 was formed around the CVA *Bon Homme Richard* and named the "Concord Squadron." The ships went on a six-week good will tour of the Indian Ocean, at the successful completion of which the force was disbanded.

In the Med, the nuclear-powered ships *Enterprise*, *Long Beach* and *Bainbridge* joined on May 13, 1964, as TG 60.1, a unit of the Sixth Fleet. On July 31, 1964, they passed through the Strait of Gibraltar, became Task Force One, and began a two-month around-the-world cruise in an operation named *Sea Orbit*. It demonstrated complete independence from refueling needs or replenishment of supplies. This task force was placed under the direct administrative and operational control of CinCLantFlt.

Carrier Divisions are administrative



TRACKERS AND SKYRAIDERS based aboard the *Wasp* fly in formation over the Mediterranean Sea. They are part of CVSG-62 assigned to Task Group Bravo, an ASW unit with missions paralleling Task Group Alfa. They develop tactics, doctrines and equipment for ASW missions.

commands. Whenever a Carrier Division Commander exercises operational command, he does so as a commander of a Task Group or a Task Force. While in the Med, for example, *Enterprise* was under the administrative command of ComCarDiv 2 and under the operational control of CTG 60.1.

There are two types of CarDivs, attack carrier divisions and ASW support carrier divisions. In the Atlantic are three CarDivs (2, 4 and 6) and four ASW support CarDivs (14, 16, 18, and 20). In the Pacific are four attack CarDivs (1, 3, 5, and 7) and three ASW support CarDivs (15, 17 and 19). On January 15, 1964, CarDivs 15, 17 and 19 were redesignated ASW Groups 1, 3 and 5, respectively.

Most of the carrier divisions were organized in WW II and have eventful histories. Typical is Carrier Division Four, activated March 13, 1943, in the Pacific. In December 1945, the Division was deactivated and re-established in the Atlantic Fleet, effective as of January 1, 1946.

During the war, the Division was part of Task Force 58 and participated in strikes against the Marianas. In

April 1944, it supported landings at Aitape and Hollandia. In October, it participated in raids on the Ryuku-Formosa area, and later that month in Luzon raids and the support of Leyte landings. In December, it operated in support of landings on Mindoro. In March 1945, it participated in operations against Okinawa, and in July and August, in strikes against Japan.

The Division flag was first flown in *Bunker Hill*. It now flies in *Forrestal*. The mission of the staff has remained essentially the same throughout the years: gathering and evaluating strategic, tactical and logistic information on all phases of the existing situations; preparing plans, directives, schedules and reports based on such information, or in compliance with directives from higher authorities; dissemination of information to subordinate and higher commands; supervision of the commander's directives by subordinate commands; and forming and commanding forces as directed by higher authority.

Typical of the ASW support carrier divisions is CarDiv 15, redesignated ASW Group 1. It was commissioned in December 1945 with

RAdm. Harold N. Martin as its first commander and USS *Badoeng Strait* (CVE-116) as its first flagship. The Division was initially assigned the dual missions of providing close air support for amphibious operations and providing antisubmarine protection for any designated task groups by employing composite ASW squadrons and coordinating their work with patrol planes and destroyers.

The Division is now a Hunter-Killer Group whose mission is detecting, tracking, and killing enemy submarines. It is also charged with the protection of merchant shipping, naval forces of all types, and the United States against enemy-launched submarine missiles.

The HUK force was born of trial and experience, primarily in the Battle for the Atlantic in WW II. The group ordinarily includes an aircraft carrier with tracker and search planes and helicopters, a squadron of eight or ten destroyers, and the support of land-based ASW patrol planes. There are several variations to this combination.

RAdm. J. K. Taussig summed up the importance of effective Fleet organization in a 1939 essay published in the *Proceedings* of the U.S. Naval Institute: "In order to guard our continental and overseas possessions and to support our commerce we must obtain and maintain command of the sea. It is a truism that the best way to obtain this command is to defeat or contain the enemy Fleet. If this is done it is a simple matter to maintain such command. Our organization, therefore, should be such as will best make this possible in whatever area the main theater of operations may fall."

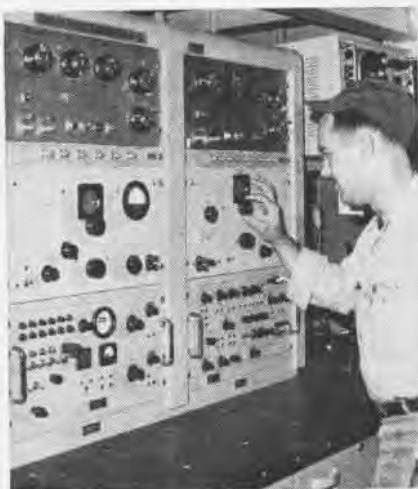
Though the modern Navy is a complex Fleet, it is a powerful one, made flexible and powerful through successful organization, learned in battle, evolved through experience and growth, and effective through expertly conceived and executed support.



TASK GROUP BRAVO ships proceed in formation in the Med. The carrier is USS *Wasp*. With her are escort destroyers from DesRon 36, from left: *Holder*, *Rieb*, *Damato*, *Wilson*, all DDE's.



IN AVIONICS SHOP, the Program Bench tests all avionics components of the Vigilante.



MASTER POWER signal source furnishes signals and voltages to test RA-5C electronic systems.



ASSC handles the repairs, reloading and re-testing of the Vigilante's aerial cameras.

VIGILANTE'S DEBUT IN PACIFIC THEATRE

THE RA-5C *Vigilante* made its operational debut in the South China Sea aboard the USS *Ranger* (CVA-61) in September 1964.

The third version of the Mach 2 twin-jet, carrier-based *Vigilante* series first arrived on the West Coast last June with Heavy Reconnaissance Attack Squadron Five (RVAH-5). During a warm-up readiness cruise to Hawaii between June 19 and July 17, the *Vigilante* and its complicated equipment performed under operating conditions. After that cruise, it deployed to the WestPac aboard *Ranger*.

Based as part of Heavy Attack

Wing One, NAS SANFORD, Fla., RVAH-5's deployment with *Ranger* was its first under its new designation as an RVAH. For reasons of economy, all *Vigilante* operations are staged from the single base at Sanford and can deploy to any overseas location.

Powered by two G.E. J79-8 engines, the aircraft is 76 feet long and has a wing span of 53 feet. It weighs in excess of 30 tons. Its jet engines produce 10,000 pounds of thrust without afterburner and 17,000 pounds with afterburner.

The *Vigilante* is equipped with the Navy's most sophisticated bombing-

navigation system, REINS — Radar Equipped Inertial Navigation System. With its unique linear bomb bay, the RA-5C delivers its stores by ejecting them rearward out of the tail. Additional weapons can be carried under its wings. The RA-5C can deliver non-nuclear and nuclear weapons at high or low altitudes of speed up to twice that of sound.

On board *Ranger*, in addition to regular aircraft maintenance, specialized shops handle intricate electronic problems. Two of the most important shops are Avionics and ASSC (Airborne Systems Support Center).



THE VIGILANTE'S panoramic camera is removed from its module by a chain hoist in ASSC.



WHEN THE PLANE is fueled, the total weight is figured and marked on the plane's fuselage.



CAMERA STATIONS in the forward part of the "canoe" are checked over for the last time.



WITH EVERYTHING ready, it is time for the final steps to be taken; Vigilante 103 is "turned up" prior to position on the steam catapult.



FLIGHT DECK CREWMEN on a waist catapult have booked up the bridle to "103" and crouch in readiness before pilot adds takeoff power.



AFTER COMPLETING its mission, the Vigilante comes back to its home carrier, its wheels and tail hook-down for a landing. But heavy overcast is a factor and the Vigilante comes in too high, so it is waved off by the Landing Safety Officer and comes in next time around.



THE DAY'S FLYING over, the "Angel" returns to Ranger and the Vigilante is positioned on the flight deck or taken down to the hangar deck for maintenance and check before it flies again.



WHEN THE RA-5C is tied down, personnel open the "canoe" and take out the exposed film.



IN A VERTICAL ENVELOPMENT operation, a CH-46A Sea Knight would take off from the flight deck, as it does here from USS Guadalcanal.



USING ITS EXTERNAL cargo hook, the CH-46A helicopter finds it no trick at all to lift and transport a 1700-pound Mighty Mite vehicle.

FLEET MARINE FORCES TO FLY SEA KNIGHT

THE CH-46A SEA KNIGHT, the Marine Corps assault transport helicopter, has been officially released by the Chief of Naval Operations for operation in the Fleet Marine Forces. Designed and produced by the Boeing Company's Vertol Division, the Sea Knight is being delivered to Marine Corps Fleet squadrons.

Prior to receiving Fleet release CH-46A Sea Knights were extensively evaluated by HMM-265 and used operationally in a Fleet Introduction Program at MCAF NEW RIVER, N. C. The aircraft is also scheduled for delivery to Marine Air Group 36.

The CH-46A was designed to meet

the Marine Corps' requirements for a medium assault helicopter to carry troops and cargo. It will be used for vertical envelopment which is the air movement of tactically complete combat elements from the flight deck of amphibious assault ships (LPH's) to positions ashore behind the beach and enemy lines.

A significant advance in assault helicopter development, the Sea Knight features a power blade-folding system which enables the aircraft's rotor blades to be folded automatically by the pilot. A major feature of the cargo-handling systems is the CH-46A's rear-loading ramps. Equipment which

exceeds the length of the cargo compartment can be accommodated by leaving the ramp open for flight. A cargo hook under the fuselage provides for the external transport of cargo. Hookup can be accomplished from within the cabin by a crewman who uses a grounded boathook to engage the lifting eye on the load and attach it to the hook.

The CH-46A features built-in flotation which makes emergency water landings and takeoffs possible. For rescue missions, the helicopter can fly 90 nautical miles, hover, rescue 20 persons and then return to the point from which it took off.



MARINES CHARGE out of the Sea Knight which carries 17 fully equipped troops on a 100-mile radius mission. It can carry up to 25 troops.



THE MEDIUM ASSAULT transport helicopter can carry a great deal of equipment; for example, a 106 recoilless rifle on an M-274 Mule.

A BIG HEART FOR 'LITTLE PEOPLE'

By Marc Whetstone, JO1, USN

HAROLD LUTES, AB1, recently fulfilled an ambition he regarded as a personal obligation as an American and a human being. He wanted to help needy people overseas.

How and when he was to accomplish this ambition remained unanswered during five successive cruises to the Far East aboard the USS *Kearsarge* (CVS-33). Each time he began working on an idea, something would inevitably interrupt his efforts. Finally, at the end of his fifth trip, he decided to undertake a personal *Handclasp* project. He would help bring a little hope and cheer into the lives of the needy in the Orient.

Such a decision involved a major financial problem. This project could scarcely be supported by even the most carefully guided budget, especially when drawn from a first class aviation boatswain's mate's pay. Nevertheless, Lutes' wife, Lois, and two children, Robert and Deena, made a definite decision to follow through, and, in February 1963, the family started to formulate plans.

The Lutes mentioned their undertaking to friends at the First Presbyterian Church in Long Beach, Calif. In turn, one of the Sunday School teachers, who was an instructor at a private school in Long Beach, initiated the project at her school. What had begun as a one-family program snowballed quickly into a combined church/school interest. Contributions of clothing, toys and various household items, including a sewing machine, were collected.

The Lutes' home took on the appearance of a department store. More than 70 boxes, containing approximately 5000 articles of clothing and 400 pounds of stuffed animals and toys, were scattered throughout the rooms. The storage problem was solved, however, by utilizing available space in the church until the day Lutes started his sixth Far East cruise. His shipmates assisted him in transporting the numerous contributions—totalling nearly two tons—on board before the carrier left Long Beach last June.

Several thousand miles and 98 days



CHINESE REFUGEE CHILDREN SHOW JOY AFTER RECEIVING TOYS FROM HAROLD LUTES

later, Lutes introduced himself to Louis Lu, director of the U. S. Servicemen's Lounge in Hong Kong after the *Kearsarge* arrived there for a liberty period late in September. It was here that his personal *Handclasp* project began.

With the assistance of Lu, who served as guide and interpreter, Lutes visited the Ebenezer School for Blind Children which accommodates 560 youngsters from a few days old through 17 years of age. He gave the school four boxes of clothing, two boxes of toys and 120 pounds of soap.

"My greatest pleasure," said Lutes, "was handing out 25 stuffed animals in the three-to-six-year-old age group. Each of the children would accept his or her gift very cautiously, then inquire about its color, the color of its eyes, and several other questions. Then, and only then, would they clutch the toys tightly as only children can."

He described for the children the color and splendor of Disneyland, a place about which he received innumerable questions. The youngsters wanted to know all about American Sunday Schools and different religions, and, of course, they were exceedingly interested in hearing about *Kearsarge* but could hardly comprehend its size.

The gift-bearing Navy man was then taken on a tour of the British Crown Colony's Hay Ling Chau Leprosarium. He distributed clothing,

vegetable and garden flower seeds, puzzles, and the sewing machine.

"The sewing machine was given to the colony because one of its 247 patients would eventually be able to use it to earn a living when he leaves the leprosarium to resume a normal life," Lutes explained.

The sailor also visited the centers devoted to assisting thousands of refugees who enter free China daily from behind the Bamboo Curtain. All donations for the refugees were given collectively to them in the Faith Christian, the Family Life, Lincoln Ling Christian Centers and the St. James Settlement.

Additional contributions were distributed to the dislocated Chinese as they emerged from six weeks of enduring a communist detention compound where everything was taken from them except the clothes on their backs. Lutes turned over 30 boxes of clothing to missionaries for this cause.

In Kowloon, he gave 18 boxes of adult clothing to the Church World Service for distribution.

When the ship visited Sasebo, Japan, in mid-October, he once again went ashore laden with the remaining gifts of essentials for elders and toys for youngsters.

Lutes has fulfilled his dream of bringing hope and cheer into the lives of the less fortunate. This is a spirit of which America is proud.

ANTARCTIC SEASON IS OFF TO BRISK START

THE TENTH annual *Deep Freeze* operation in the Antarctic got off to an unusual start and has maintained a brisk pace since that continent's isolation was broken early last October.

The flights to the continent by VX-6 *Hercules* aircraft were unusual in that they were launched from three widely separated geographic points. One C-130 took off from Melbourne, Australia, with RAdm. James R. Reedy, commanding *Deep Freeze 65*, aboard. It was piloted by Cdr. Frederick S. Gallup, C. O. of the squadron, who took the plane over South Pole Station, but was forced to divert to Byrd Station when a storm



COMMANDER of *Deep Freeze 65*, RAdm. J. R. Reedy, is shown on Melbourne-Byrd flight.

developed at McMurdo, the planned terminal point.

Hauling in sacks of mail, two other VX-6 *Hercules* landed at McMurdo after a flight from Christchurch, New Zealand, usual staging area for the squadron's planes. A fourth C-130 reached McMurdo from Punta Arenas, Chile. This aircraft had been making special reconnaissance probes over Anvers Island near the tip of the Antarctic Peninsula. It carried special photographic equipment for mapping purposes. A new scientific station will be constructed in that area this season.

RAdm. Reedy reported the unusual Australia-Antarctica flight in a message to SecNav. He said, "I am pleased to report the second longest flight in Antarctic history and the first from the Australian continent, over the



THE FIRST MAIL load to reach McMurdo Station during the current operation is stacked by an eager member of the party at Williams Field. The C-130 flight was first made from Australia.

South Pole to the U.S. Byrd Station . . . a distance of 4420 miles.

"It accomplished two notable 'first time' exploits en route. A bag containing approximately 50 pounds of letters was dropped to personnel at South Pole who could be seen on the station ski-way in the ice-fog haze. The aircraft landed at Byrd Station, the first time this station has been opened so early in the Antarctic summer season."

The Byrd landing had its moments. A malfunction of the down-lock system prevented the nose wheel and nose ski from coming down fully and it was necessary to land with the nose wheel chained in the down position. About 12 hours later, the crew had repaired the gripe, the plane was refueled, and the flight to McMurdo completed.

Four days later, two important weather stations on the continent were manned. The newly established Little Jeana station replaced the familiar Beardmore station on the Beardmore Glacier. The second station, Little Rockford, is situated on the Rockefeller Plateau. The stations consist of portable vanlike buildings airlifted by VX-6 planes.

Hallett Station, most picturesque of

the Antarctic stations, jointly manned by the U.S. and New Zealand, was next visited by Adm. Reedy. Then the isolation at Eights Station was broken. It is the smallest and most isolated of U.S. stations, manned by ten men led by a Navy chief hospital corpsman. It is 1350 miles from McMurdo, located in bleak Edith Ronne Land at the base of the Antarctic Peninsula.

By the end of the first month, 280 men from VX-6 alone had reached the ice. Operations were in full swing.

One of the more interesting support flights this season was the landing of a C-130 at the Soviet-manned Mirnyy Station on the Queen Mary coast. Purpose of the flight was to deliver an American exchange scientist, Dr. George Meyer of the University of Texas, who will winter over at Mirnyy as a guest of the Soviet scientific party stationed there. Meyer, a microbiologist, is the fifth American to spend an austral winter at Mirnyy since the exchange program began in 1957, the beginning of the International Geophysical Year.

The *Deep Freeze 65* flights over the continent are expected to continue until sometime in March this year.



THE COAST GUARD HH-52A has made hundreds upon hundreds of on-the-water rescues. Now Navy's Bureau of Naval Weapons has developed a helicopter-towed boat able to carry additional fuel and rescue facilities, opening up the possibility of using it for rescue at sea.

SEARCH HELICOPTER TOWS RESCUE BOAT

THE POPULAR image of rescue at sea a generation ago was dominated by a weather-beaten figure of heroic stature holding in his muscular and gnarled hands a life preserver and a coil of slender line. He stood, alert and tense in the bow of a cutter driven inexorably through surf and sea by the rhythmic surging impulse of many oars. Today, the flashing blades swing around a rotor hub, sou'westers have given way to flight helmets and oil skins to flying suits.

The helicopter has won acceptance as the most effective rescue craft, able to hover precisely above or come alongside disabled craft, liferafts or men in the water. A variety of rescue nets, scoops, seats and hoists have improved the chances of a successful rescue, even if the castaway is injured

By Eugene H. Handler, BuWeps

or helpless. But the heavy demands placed on the helicopter have shown the need for increased range, capacity and endurance.

Search and rescue personnel longingly describe an "ideal" rescue aircraft as one combining the hovering capability of a helicopter, the speed and range of the venerable *Albatross* and the seaworthiness of a whaleboat in a single, unsophisticated, reliable craft, operable from ship or shore—all at low cost. Twin-turbine helicopters and V/STOL aircraft, still under development, could provide most of the capabilities of this hypothetical craft, but it would probably be at a far higher price than aircraft now in service. The helicopter's proved

capability as a flying tugboat indicated a possible solution to the problem, providing that a "barge" could be built for satisfactory towing at 70 to 80 knots in the open ocean. It was agreed that a towed conventional planing hull might carry fuel for the helicopter, but its riding qualities would be brutal enough to drive its rescues back to their lifecraft. Full scale tests of a hydro-ski fuel boat were more encouraging, but the high drag and wild slamming from crest to crest discouraged any further consideration of it as part of a rescue system. The serene passage of conventional hydrofoil craft, cruising at 30 or 40 knots, gave promise, but this was soon dispelled by the abrupt adverse changes in flow about the foils at double these speeds and in more

severe sea states. Sophisticated hydrofoil control systems developed by the Bureau of Ships, although admirable for 100-300 ton patrol craft, are too elaborate and expensive for the small towed rescue boat and cannot be considered further.

Conventional subcavitating hydrofoils resemble airfoils, deriving their lift from water just as an airplane wing derives lift from surrounding air. With increasing speed, however, the flow about the hydrofoil ceases to behave, and low pressure on the foil's upper surface often causes the rapidly moving water to break away from the foil in a process called "separation," which is related to aerodynamic stall. Sometimes the water passing over the hydrofoil "cavitates" or vaporizes into innumerable small bubbles, followed by both separation and erosion. Cavitation and separation often occur with startling rapidity, causing loss of lift, increase in drag, and violently destructive vibration.

In recent years "supercavitating" hydrofoils have been developed for high speed. This type foil is shaped like a curved wedge, with convex upper surface, concave lower surface and pointed in front. It throws the water completely clear of the upper surface, which is then covered by a clear air or vapor "cavity," and depends for lift solely on the planing action of the lower surface; that is, a supercavitating hydrofoil plane deep in the water on a self-generated sub-surface below a self-generated atmosphere. This foil is suitable for high speed because flow separation and its resultant adverse effects occur at fairly low speeds, before the attendant force changes have acquired sufficient magnitude to destabilize the craft.

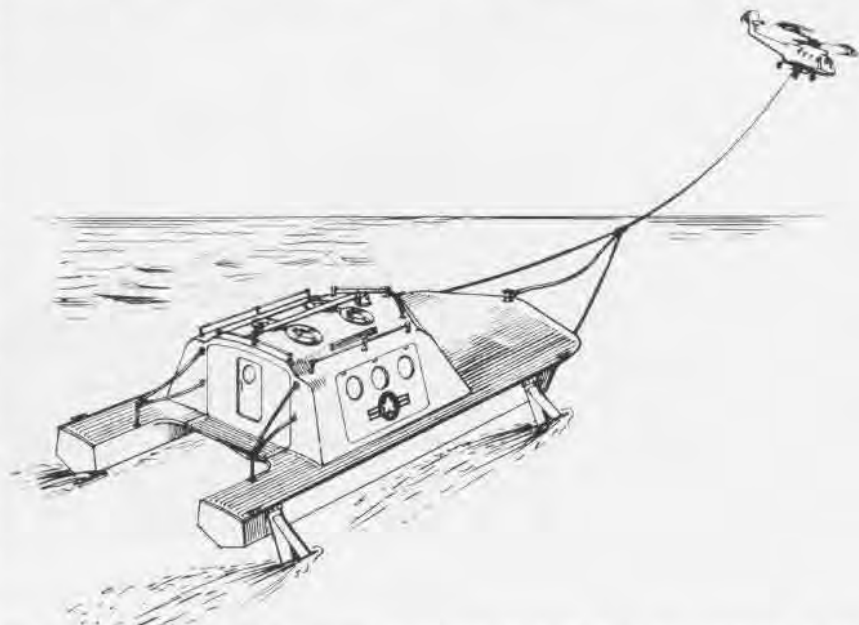
The development and refinement of high speed hydrofoil craft, together with the remarkable towing capabilities of helicopters, provided background for Bureau of Naval Weapons studies of several helicopter-towed waterborne craft, generally known as "sea pallets." These carry equipment or weapons for a particular mission as well as fuel for the helicopter. During flight, fuel is pumped through the combined hose-cable to the helicopter tanks. If the pilot elects to drop his tow, the powered reel in the pallet winds in the hose-cable and re-positions it for subsequent pick-up.

A brief study was made to deter-

mine the optimum size of a pallet for tow by the Coast Guard HH-52A helicopter. Ranges were determined for several pallet sizes, gross weight/fuel weight ratios, and foil system lift/drag ratios. In developing such a concept for SAR use, guidelines and assumptions for the rescue pallet study were established: Foil system lift/drag ratio would remain essentially constant throughout the constant speed cruise. Only pallet fuel would be used, leav-

smaller quantity of fuel is reflected in decreased range. Precise size depends upon analysis of information relating to mission distances, sea conditions, and compromise between speed and range.

In a rescue mission, the pallet would require a small degree of mobility to enable it to maneuver accurately during retrieval of partially or totally disabled persons. Electric motors could draw power from the helicopter APU,



THE HELICOPTER-BOAT TEAM is designed to cruise at 70 to 80 knots over a distance of 500 to 600 nautical miles, and would be able to carry six passengers in cabin cruiser comfort.

ing the fuel in the helicopter as reserve. A moderate sea state was assumed. Calculations were made on the basis of having one-half of the pallet gross weight equally divided between "airframe" and fuel. The range calculations took into account the constantly decreasing weight and proportionally decreasing resistance of the pallet. It was assumed that the pilot would periodically adjust power to maintain a predetermined airspeed.

Review of data relating the -52A range on pallet fuel for various size SAR pallets towed at several cruise speeds established the optimum pallet gross weight as 7500-10,000 pounds. Larger towed craft lose their effectiveness because of substantially reduced cruise speed, so that although endurance is not affected, range is unacceptably decreased. The 7500-pound pallet permits higher cruise speeds, but the

or an outboard motor or equivalent might be installed so that the boat could operate completely free of the helicopter.

The Edo Corporation designed a rescue pallet for the -52A or similar helicopter. The need to place a large cabin on a small displacement hull and the desire to locate the rescue ramp in as sheltered a location as practicable led to a catamaran design. This boat's one-man crew would have to be a master of many trades. He would have to be able to maneuver his craft so the rescue ramp is in best position for recovery of men, operate the ramp and assist those rescued on board, help them into the cabin, perform first aid, then feed his passengers. The cabin would have heat, light, fresh water, radio, bunks, medical gear, a small galley and a huge coffee pot, and other facilities to make the

homeward trip as comfortable as possible.

The ability to drop and retrieve the pallet as desired would give the helicopter far greater operational flexibility. For example, the pilot could fly several hundred miles to sea, using pallet fuel, drop the pallet and conduct a search using helicopter fuel, pick up the hydrofoil boat and return home on pallet fuel. In similar fashion, two helicopters could share one pallet.

Increasingly rough water will, of course, limit the speed at which the rescue pallet can be towed. Aside from greater resistance, the impacts inflicted by waves on a boat eventually will cause discomfort to passengers, so

ment for the *Albatross*. BUWEPs is sponsoring studies for a similar system intended for ASW missions. Adaptation of the ASW pallet to Search and Rescue indicates that the SH-3 *Sea King* or its equivalent could tow a 20-ton gross weight SAR pallet, carrying 10 tons of fuel over 1200 miles at 80 knots, arriving with full fuel tanks. The 40-foot craft is large enough to be fitted with a miniature flight deck and tie-down gear and sufficiently steady when lying in a seaway to be used as the helicopter's own private flattop.

The large pallet could be readily maneuvered by the helicopter when resting on the "flight deck." Because of the small forces involved, rotor

bility of the single hull would be satisfactory at rest and under tow; better use of space is possible in the large single hull; and its cost would be substantially less than that of the catamaran because the flight deck would not be required to withstand the structural loads imposed by the twin hulls.

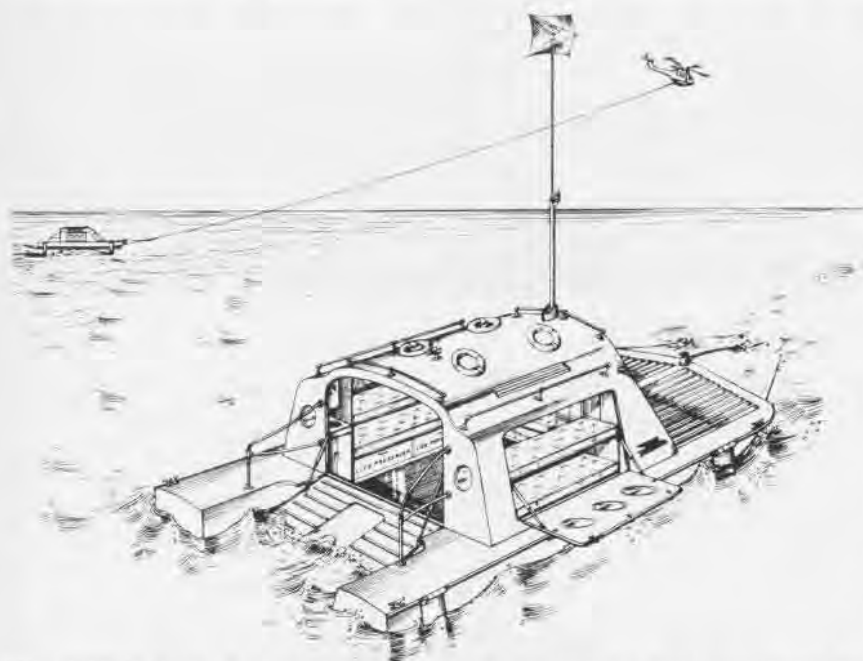
Model tests of the large pallet are now in progress. Hydronautics, Incorporated, is testing 1/8 and 1/24 scale models to verify the predicted resistance and stability characteristics. This program insures that the towing characteristics of the pallet will match the maneuvering capabilities of the helicopter.

During WW II, when ships were lost from convoys through enemy submarine and air attacks, rescue of survivors was generally carried out by a destroyer, corvette or similar escort. This second ship was frequently sunk or damaged during the rescue. Use of convoy-based helicopters and pallets would eliminate the need to risk a second ship while saving the crew of one already lost. The pallet is nearly immune to torpedo attack; the economics of war dictate against the expenditure of a costly torpedo on a lifeboat or its equivalent.

The pallets would normally be towed by ships, being lifted aboard only for maintenance, repair, or upon return from a rescue when it was desired to save survivors from the hazards of boarding a ship via a ladder from a small craft.

Although the majority of ocean mishaps occur within operational radius of Coast Guard helicopters, enough accidents occur beyond this distance to warrant serious study of aircraft range extension methods. If the helicopter-pallet team provides an economical solution to the needs of the Coast Guard, it might well serve for SAR units based on carriers, thereby relieving the flattops of SAR responsibility and equipment. Another advantage would be that it would permit a better distribution of rescue craft throughout a task force or convoy.

It is believed that all services engaged in ship, carrier, amphibious or shore-based missions might do well to consider whether the sea pallet concept can provide their helicopters with added capabilities, enabling them to perform missions now assigned to much slower surface craft.



RESCUE RAMP, bunks, heat and light would give the one rescued a home away from home until he comes ashore. The crewman aboard provides first aid, dry clothes, and hot coffee.

that this factor determines cruise speed during the homeward trip following a rescue. Should the sea become so rough that the pallet must be set adrift, rescues would still be far safer and more comfortable than in a lifeboat or lifeboat. After the storm the boat can be retrieved or, if need be, can proceed under its own power.

If the rescue pallet performs as well as anticipated, it is conceivable that serious consideration might be given to a twin turbine helicopter-hydrofoil pallet as a possible replace-

downwash would be slight, with little, if any, attendant adverse effects on personnel in the boat or water. The added mass of the helicopter and resultant increased radii of gyration would significantly decrease the boat's pitch and roll rates, already greatly reduced by the damping action of the submerged hydrofoils.

The merits of single and twin-hull 20-ton pallets were compared by analysis and by model tests. It was concluded that the single hull was structurally superior and lighter than a comparable catamaran; transverse sta-

ON PATROL WITH ATLANTIC AIR WINGS



GIBRALTAR'S FAMED ROCK is a familiar background for Atlantic Fleet ASW units deployed to the Mediterranean. VP-21 Neptunes "pose" for typical photo. Atlantic Fleet squadrons are on duty every day from the North Atlantic to the Caribbean, from U.S. to the Med.

THREE ATLANTIC FLEET patrol squadrons had a chance to test their new "long legs" during *Steel Pike I*, the largest peacetime transfer of U. S. troops ever conducted.

VP-8, VP-49 and VP-44, all under the command of Commander Fleet Air Wings, Atlantic Fleet, RAdm. A. R. Matter, flew convoy protection flights from the East Coast of the U.S. until the ships reached the exercise area on the coast of Spain. The aircraft were land-based P-3A Orions flying out of Patuxent River, Bermuda and Lajes, the Azores.

It marked the first time that a convoy had land-based ASW protection during the entire transit period. The three squadrons alternated on the transit, without missing a flight.

An excellent example of the long range of the Orions was delivered October 1 when Capt. James Ward, Chief of Staff, Fleet Air Wing 11, flew non-stop to Rota, Spain, from Jacksonville. Purpose of the trip was a conference with the C.O. of VP-7, Cdr. T. A. Graham, whose unit was

getting ready to transition into the P-3A from SP-2H Neptunes.

A group of VP-30 instructors also were on the flight. VP-30 is the replacement air group which provides transitional training for all Atlantic Fleet patrol squadrons.

A detachment of VP-7 based at NS KEFLAVIK, Iceland, batted 100 per cent in three search and rescue efforts in September. The squadron's #12 crew with LCdr. P.F. Yosway as plane commander (PPC), took part in all three incidents.

Lost and low on fuel, a *Skywarrior* pilot requested steers to Iceland. Crew #12 established a radio fix on the lost plane, alerted land units in Iceland, and the aircraft was brought to a safe landing. Two days later the same crew picked up an emergency call on radar. The signal was from an AF fighter plane which had lost all electrical power. Again a safe landing was effected.

Two days later, a single-engine civilian aircraft en route to Iceland was lost and running low on fuel. Just as the little plane's pilot reported

dry tanks, visual contact was made by Crew #12. The pilot landed in the sea on a heading recommended by the Navy crew, ditched successfully and was picked up by a Keflavik helicopter 30 minutes later. It was a busy four-day period for one crew.

A crew from VP-8 participated in the latter rescue, also. VP-8's LCdr. F. P. Gigliotti, an *Orion* PPC, and his crew, were alerted to the rescue effort and, working quickly in response to the low fuel state emergency, cooperated with VP-7's crew in establishing a "probable position" for the lost plane.

* * *

A crew from VP-11 received a thank-you present from four men who had been shipwrecked in the North Atlantic last summer. The crew, with Lt. Pete Theodorelos as plane commander, spotted four men who had spent nine days on a raft following the loss of their 36-foot yacht 300 miles southeast of Cape Cod. Their ship had struck a submerged object and had sunk. Lt. Theodorelos reported the sighting to shore and a

nearby freighter's crew then pulled the men out of the water. The four rescued men later travelled to VP-11's home at Brunswick, Maine, to deliver a special plaque to the crew.

* * *

A detachment of seven SP-2E *Neptunes* from VP-5 arrived at Guantanamo Bay to begin a deployment. Cdr. J. T. Kosnik, the squadron executive officer, is officer-in-charge. The unit, which relieved VP-24 at NAS LEEWARD POINT, is home-based at NAS JACKSONVILLE.

(In last month's Patrol News, a missing line of copy misplaced the location of a squadron. The missing line resulted in VP-24 being placed inadvertently in the Pacific Fleet. Actually the squadron was first commissioned in the Pacific at Kaneohe Bay, but has long served in the Atlantic. Cdr. R. D. Amme is C.O. of the Norfolk-based squadron.)

A group of three VP-18 aircraft and crews, meanwhile, went to NS ROOSEVELT ROADS to prepare the groundwork for the movement of the squadron to that Caribbean base from Jacksonville. The squadron's move will be made over a period of several months. The unit had been based at Jax for 12 years.

* * *

VP-16 became the second Jacksonville area *Orion* squadron as the first set of new aircraft arrived as replacements for SP-2E *Neptunes*. Transition by pilots and crewmen had started by the time the first P-3A's were delivered. VP-45 was the first at the Flor-



W. H. STORIE, AME3, struggles in the wind while demonstrating the handling of a parachute at a "Welcome Home" for Cdr. W.J. Vaughn who flew to Jax in VP-16's first P-3 Orion.

ida base to receive the P-3 *Orions*.

* * *

Patrol Squadron 23 won the E award for FAW-3, but there was stiff competition this year. All five of the Wing's VP squadrons were cited by VAdm. Paul H. Ramsey, ComNavAirLant, for successful operations without a major accident during fiscal 1964. All five squadrons logged more than 11,000 hours during the year. VP-21 topped the 66,000-hour mark in accident-free flying dur-

ing September. Altogether the units—VP-23, 21, 11, 10 and 26—topped 63,000 hours for the year.

* * *

Fleet Air Wing Five's E winner for the year, VP-44, accepted its award from the Commander, Fleet Air Wings, Atlantic, RAdm. A. R. Matter in ceremonies at NAS Patuxent. VP-44 thus became the first E winner to have spent the entire year flying the relatively new P-3A *Orion* ASW aircraft. Since 1951, VP-44 has flown, successively, the *Mariner*, the *Marlin*, the *Neptune* and the *Orion*.

* * *

VP-26 returned in September to its Maine base following a deployment to NAF SIGONELLA, Sicily. While deployed, an intensive ground school program was set up to train men in the airborne tasks. The unit returned with 67 men designated as aircrewmen and many others in prospect.

* * *

The *Orion* has become "home" to many of the pilots of VP-30's Detachment *Alfa* at Patuxent. While instructing other pilots in the new aircraft and its systems, 11 VP-30 instructors have passed the 1000-hour mark in *Orions*. The parent squadron is located at NAS JACKSONVILLE.



THREE RESCUES IN FOUR DAYS is the record these men from Patrol Squadron Seven made when on deployment in Iceland. Plane commander, LCdr. Yosway, is fourth from left, front row.

SELECTED AIR RESERVE



CAPT. N.R. CHARLES, C.O. of NAS Willow Grove, and **Cdr. H.W. Noack** stand near seaplane Noack flew from *Prinz Eugen* in WW II.



ANDRES KURRIK, RM1, displays plaque he received to **Capt. Jim Bock**, NARTU Alameda C.O. and **Wm. Sparling**, Oakland civic leader.

German Pilot Finds his WW II Plane

When eight West Germans, attached to the First Helicopter Squadron, Naval Air Wing 5, out of Kiel-Hotenan, Germany, arrived at NAS WILLOW GROVE to attend a course given by the Naval Air Reserve Electronics Training Unit, their commanding officer had a surprise awaiting him—an Arado AR196A seaplane.

"I flew that seaplane off the *Prinz Eugen* in 1944," Cdr. Hans W. Noack said in disbelief.

At Willow Grove, almost 20 years after the end of WW II, was one of the three German Arado AR196A seaplanes in which he had flown on 120 missions while aboard the *Prinz Eugen*. (The *Prinz Eugen* was delivered to Boston after the war and later moved to Philadelphia where the Arado AR-196A was delivered to Willow Grove.)

"I thought the plane was destroyed at Bikini Atoll along with the *Prinz Eugen* during the first massive atomic bomb tests. It's like turning back the pages of time and history," Cdr. Noack said.

The WW II German heavy cruiser was utilized as a raider against Allied naval and merchant ships. The 120 missions flown by Cdr. Noack were armed reconnaissance flights and anti-submarine defense of the *Prinz Eugen*.

Cdr. Noack and the five commis-

sioned officers and two enlisted men attended the Electronics Training Unit to get advanced training in ASW systems. During their ten weeks at Willow Grove, they trained aboard the Sikorsky SH-34J helicopter. They practiced with airborne sonar, lowering the transducer into the ocean to detect U. S. submarines by sound. The



CDR. R.J. WESTBROOK, Commanding Officer, gives a "thumbs up" signal for the first launch of the SH-34J, piloted by Lt. J.P. Combs, the first pilot assigned to the newly formed Air Antisubmarine Warfare Helicopter Squadron 861. The new unit, commissioned Oct. 1, 1964, is based at NARTU Norfolk.

flying classrooms operated with Atlantic Fleet submarines.

Naval Air Reservist of the Year

At NARTU ALAMEDA, Andres Kurrik, RM1, was honored as "Naval Reservist of the Year." A naturalized American citizen, Kurrik was born in Estonia. When communism threatened that land, his family moved to West Germany. Then, in 1955 at the age of 18, Kurrik came to America.

A member of Air Wing Staff 87L at Alameda, he was selected for the honor on the basis of "outstanding intelligence, resourcefulness and dedication to the principles of freedom" by the Oakland Council of the Navy League. On his recent examination for First Class Petty Officer, he was one of only four out of 35 who passed and the only one making a perfect 4.0 score.

In his civilian capacity, Kurrik is a technical assistant on the *Polaris* project for Westinghouse Electric Corporation in Sunnyvale, Calif.

Successful Cruise for VS-724

VS-724 completed one of the most successful duty cruises in the history of VS Reserve training, according to Cdr. Kenneth J. Dehms, senior training officer at NAS GLENVIEW, Ill.

The squadron cruised with VS-37 at NAS NORTH ISLAND.

The squadron had 94% pilot participation in the cruise. Eighty-three per cent of the ground officers participated; 86% of the aircrewmembers, and 85% of the remaining enlisted personnel. Each pilot flew nearly 57 hours during the two-week cruise for a grand total of 494 hours flown.

Inspection at Los Alamitos

Thousands of Naval Air Reservists from the Southern California and Arizona area converged on NAS LOS ALAMITOS on October 18.

Once each year, the full force of 4000 Weekend Warriors report to the air station to stand the Annual Military Inspection conducted by the Chief of Naval Air Reserve Training, RAdm. George P. Koch.

"This inspection is the culmination of a year's intensive training and preparation," declared Capt. William P. Tanner, Jr., Commanding Officer of the air station. "It is, in my opinion, one of the most colorful annual events in Southern California."

Adm. Koch made special presentations and awards to individuals and squadrons who were honored for outstanding achievements.

Evenly Matched

Thirty-one Reserve pilots from Navy Attack Squadron VA-876 and Marine Corps Squadron VMA-141, both attached to NARTU ALAMEDA and both flying A-4B *Skyhawks*, matched skills during a live bombing and rocket-strafting of pre-designated



GEORGE M. KLEIN, JR., AD1, NARTU Andrews AFB, Md., receives for his civic contributions the Theodore Roosevelt Citizenship Award from Mr. W.R.F. Adams of the Navy League. The award preceded an address by SecNav Paul Nitze in a Navy Day celebration held at the Sheraton-Park, Washington, D.C.

targets at NAAS FALLON, Nev., to determine their fighting readiness.

The two military service units were well matched. When the six-hour exercise ended, the tally sheets were closely checked. The Marines had "out-bombed" the Navy by a score of 159.9 to 155.5. But the Navy's rocketry was superior: 132.1 to 112.1.

Fifteen pilots flew under the command of LCdr. D. E. Crow, and 16 flew under the leadership of LCol. Richard D. Karns.

All Safe

Capt. Jim M. Bock, Commanding Officer of NARTU ALAMEDA, had a pleasant duty to perform recently. He handed out handsomely printed

safety citations signed by RAdm. George P. Koch, CNAResTra. Nineteen of 20 NARTU ALAMEDA squadrons achieved "100% aviation safety" during the past year.

Eight squadrons received the safety citation for the fifth consecutive year; three squadrons for the fourth consecutive year. The remaining five squadrons accepted the award for the second consecutive year.

'E' Winners Cooperate

VP-662, home-based at NAF ANDREWS, spent its two week AcDuTra with its sister squadron, VP-44, at NAS PATUXENT RIVER. VP-662 had been awarded the Noel Davis Trophy for being the outstanding patrol squadron in the Naval Air Reserve Training Command, and VP-44 was wearing the Battle Efficiency E Award for Fleet Air Wing Five.

VP-662 is a "non-hardware" squadron. This means the squadron has no aircraft of its own to fly if hostilities were to break out. Were such to occur, VP-662 would join VP-44 and fly the P-3 *Orion*, transitioning from the SP-2E *Neptune*.

One Lucky Day

It was lucky Friday the 13th for the personnel aboard NAS NEW YORK as some 500 people, including officers, enlisted men, their wives, friends and guests attended the opening of the newly decorated Enlisted Men's Club.

The club was opened by Captain J. J. Hinman, III, Commanding Officer of the station, who marked the occasion with a ribbon-cutting ceremony.



MARINE AIR RESERVIST, Capt. T.P. Lackovic of VMA-141, checks instrument panel of his A-4B as ground crewman awaits engine start.



CDR. P.F. HUNGER, III, C.O. of VP-44, stands beside his Orion (left), shaking hands with Cdr. H.A. Estes, Jr., of VP-662, near his Neptune.

AT SEA WITH THE CARRIERS



A GRUMMAN HAWKEYE is being launched from the flight deck of the USS Oriskany. The E-2A is 56 feet, 4 inches, in length and has a wing span of 80 feet, 7 inches. The two Allison turboprop power plants, which whirl reversible pitch propellers, generate 4600 horsepower each.

PACIFIC FLEET

ORISKANY (CVA-34)

Off the southern California coast, *Oriskany* became the first carrier of its class to recover and launch a bevy of new Grumman E-2A *Hawkeye* aircraft. *Oriskany* claims also to be the first carrier to conduct air operations with the *Hawkeye* in the Pacific Fleet.

The *Hawkeyes* belong to Airborne Early Warning Squadron 11 which is based at NAS NORTH ISLAND. VAW-11 is equipped with 16 *Hawkeyes*.

The first *Hawkeye* to touch down on *Oriskany's* flight deck for a full-stop landing was piloted by Cdr. Paul Mozley and Capt. M. G. O'Neil, VAW-11 C.O.

Twenty trainees from Aero Space Research Pilot School, Test Pilot Division at Edwards AFB, were flown aboard for a 24-hour voyage from NAS NORTH ISLAND, via C-1A *Traders*, to observe flight operations.

The guests spent the bulk of their time viewing flight operations held by eight different type of aircraft belonging to *Oriskany's* Carrier Air Group 16.

Lt. Art Avore, of VA-163, made

the 82,000th arrested landing in an A-4E *Skyhawk*.

BON HOMME RICHARD (CVA-31)

In mid-November, Detachment *Echo* of VAH-4 returned to NAS WHIDBEY ISLAND from the longest deployment to WestPac of a Whidbey-based unit. Flying the A-3B *Skyraider* aboard the USS *Bon Homme Richard*, Det. *Echo* was led by Cdr. Robert H. Belter.

During the cruise, Det. *Echo* logged 1270 flight hours and 357 carrier landings. Lt. John F. Smith earned the distinction of being the Det's first pilot to make Double Centurion (200 carrier landings on the same ship). His record landing also marked the 10,000th trap recorded during Capt. G. S. Morrison's command of the carrier.

A two-phase personnel transfer at night was achieved by *Bonnie Dick* when a doctor was transferred from the carrier to the USS *Ashtabula* (AO-51) at 0200 to treat an injured man. Fire hazard from oil fumes made it impossible for *Bonnie Dick's* jet helicopter to land on the oiler, so the helo was forced to fly to the USS *Berkley* (DDG-15) alongside the oiler.

Fighting 25-mph winds and 10-foot waves, the helo hovered 25 feet above the fantail of the DD while two crewmen lowered Dr. J. M. Volk by sling to the deck. The doctor was then high-lined to the oiler.

Pilots of the UH-2A were Ltjg. F. J. Hall and LCdr. L. F. Bowman. Crew members were C. J. Britt, AN, and W. E. Zimba, AM3. They are attached to HU-1, Detachment *Echo*.

CORAL SEA (CVA-43)

After a nine-month's absence, *Coral Sea* has come out with the "new" *Sea Breeze*. It is now a monthly magazine rather than a newspaper. The reason for the change of pace, as stated by the editors, is that "magazine articles are more informative and have the advantage of permanence. They are written to give the reader more details and pertinent background information." Two articles in the November issue featured San Francisco and Seattle. The informative, educational and, at times, humorous magazine rates high in pictorial presentations.

The 135,000th arrested landing aboard *Coral Sea* was logged by Lt. A.G. Harrison of VA-165.

CONSTELLATION (CVA-64)

In the *Constellation*, VA-146 (the *Blue Diamonds*) has been awarded the Navy Unit Commendation for meritorious service in support of naval operations in the Gulf of Tonkin, August 4-5, 1964. VA-146 participated in successful air counter attacks against North Vietnamese torpedo boats, their bases and supporting facilities. Cdr. E. V. Crangle commands the *Blue Diamonds*.

Ltjg. William M. Myers of VF-142 made the 31,000th arrested landing aboard *Constellation* in an F-4B *Phantom II*. RIO was Lt. W. R. Moore.

HANCOCK (CVA-19)

Before departing on its WestPac deployment, USS *Hancock*, commanded by Capt. A. J. Brassfield, held the Third Annual Sea Cadet Review.

The Cadets and their guests toured the flight deck, rode the aircraft elevators and climbed to the bridge where some sat in the Captain's seat. The Sea Cadets are sponsored by the San Francisco Council of the Navy League of the United States.

During operations off the Hawaiian coast, en route to the Seventh Fleet, the 68,000th carrier arrested landing was made by Ltjg. S. S. Crisman of VA-216, flying an A-4 *Skyhawk*.

MIDWAY (CVA-41)

The *Black Lions* of VF-213 conducted SPN-10 Mode II evaluations on the *Midway*. Four F-4G *Phantoms* participated. The Mode II method makes use of auto-throttle control and SPN-10 information which allows the pilot to fly a smoother, more accurate glide slope. VF-213 is the first Navy squadron to use this system aboard ship.

Capt. Whitney Wright, *Midway* skipper, joined the 10,000th Trap Club when Lt. J. P. Cullen of VA-23, flying a Douglas A-4E *Skyhawk*, made the 10,000th landing on the 62,000-ton ship since Capt. Wright assumed command January 25, 1964.

KITTY HAWK (CVA-63)

Twenty-four student officers and enlisted men, serving aboard *Kitty Hawk*, have been awarded diplomas upon graduating from Reconnaissance

Attack Squadron Three's Integrated Operational Intelligence Center (IOIC) at NAS SANFORD, Fla. The IOIC trains personnel in the operation and maintenance of the automatic data processing equipment used aboard the Navy's attack carriers.

TICONDEROGA (CVA-14)

Cdr. Gene Sizemore of VA-55 in his A-4E made the 66,000th landing aboard the *Ticonderoga*.

VALLEY FORGE (LPH-8)

The chaplains of the USS *Valley Forge* do not wear the wings of Naval Aviators, but thanks to the helicopters of HMM-364, commanded by LCol. J.H. Lavoy, they have logged ample flight time. During the South China Sea alert, Task Group 76.5 commanded by Capt. C. N. Conatser from the Flagship *Valley Forge*, supplied religious coverage to all the ships of the group as well as some units of Task Force 76 when present. On one weekend, there were 21 ships listed in the church schedule.

Men of the Jewish faith were lifted to *Valley Forge* during the guard mail runs for the service conducted by Ltjg. L. M. Weatherhorn, the *Valley Forge's* Hebrew-speaking lay leader.

The chaplains were lifted by a padded sling on a cable attached to a winch on the helicopter. Foc'sle, fantail or any open space on deck



CAPT. E. N. CONATSER, C.O. of *Valley Forge* (LPH-8) inspects the men of Echo Division. They are wearing newly acquired Battle E's.

were used as a place to lower the chaplains onto the ship. HMM-364 boasts, "We have never lost a padre."

YORKTOWN (CVS-10)

The "Fighting Lady" is making her fifth WestPac cruise since she was converted to an ASW carrier in 1958. CVSG-55 is aboard *Yorktown*.

The "Stoof" from VS-25 received a clean bill of health from Lt. William C. Rosenfeld, USN(MC), flight surgeon for VS-25, when he was riding as copilot with Lt. D. V. Taff as it made the 96,000th landing aboard.

ATLANTIC FLEET

AMERICA (CVA-66)

USS *America* began her sea trials November 18, sailing from Newport News, Va., through the Virginia Capes to the Atlantic, manned by a civilian crew.

Her skipper, Capt. Lawrence Heyworth, Jr., sent a message to VAdm. Paul R. Ramsey, ComAirLant: "Under way on fossil power." He was referring to the use of oil, rather than nuclear power.

Aboard for the trial were 2400 persons—employees of the Newport News Shipbuilding and Dry Dock Company, representatives of contractors whose products were used in the building of the carrier, Naval personnel, and a number of invited guests.

The new carrier is scheduled to be commissioned this month.

INDEPENDENCE (CVA-62)

The NATO maneuvers in the North Atlantic, with the carrier USS *Independence* as lead ship, were highly successful, according to word received from the carrier. En route to the Norwegian Sea, *Independence* conducted a "tremendous" number of aerial sorties with her embarked Carrier Air Wing Seven. No small part of the exercise was the replenishing operations, often conducted in heavy seas.

In 56 hours, 329 full instrument landings were made by *Independence* pilots. Ceilings were as low as 200 feet and visibility was never more than 1½ miles, but operations never slackened. All departures and landings were under positive control of CVA-62's Carrier Air Traffic Control



A PROFILE OF POWER is displayed as the Grumman A-6A Intruders of Attack Squadron 75, attached to USS *Independence* when deployed, engage in a training flight from NAS Oceana.

Center, headed by Cdr. R. E. McCall.

Independence and the other ships in the NATO task force continued through heavy seas and launched simulated attacks on mock targets in northern Europe. Still subjected to adverse weather, *Independence* steamed south to the Bay of Biscay and again launched attacks on mock targets.

Acceptance of the Golden Tail Hook Award has become routine for Cdr. Grover Walker, Commanding Officer of VA-72. Cdr. Walker and his *Blue Hawks* have won the award six of the ten times it has been presented, including four out of five times during Cdr. Walker's tour.

The Golden Tail Hook is awarded to the CVW-7 squadron which demonstrates the highest degree of excellence in its carrier approaches and landings during each "at sea" period.

INTREPID (CVS-11)

Intrepid shared with France's third largest carrier, *Arromanches*, a celebration at Yorktown, Va., in honor of the 183 years since British General Cornwallis surrendered, ending the decisive fight for American independence. France played an important role in that victory when Adm. Francois de Grasse in 1781 repulsed a British Fleet in Chesapeake Bay, thereby preventing assistance to Cornwallis.

At the official battlefield ceremony, ten 1650-pound cannon were presented to the people of Yorktown.

The 1770-vintage arms had been transported by *Arromanches* to the U.S. These were presented by His Excellency Herve Alphan, French Ambassador to the United States. They were accepted by the Hon. Harry H. Byrd, U.S. Senator of Virginia.

LAKE CHAMPLAIN (CVS-39)

LCdr. Kenneth C. Eckered, who was catapulted off the USS *Lake Champlain* in an S-2F, marked the 17,000th launch by the crew of the starboard catapult.

The launch was conducted while the *Champl* was on antisubmarine maneuvers in Operation *Steel Pike I* in the Eastern Atlantic.

SHANGRI LA (CVA-38)

Four civilian engineers boarded *Shangri La* in November to install and test an innovation which may revolutionize one phase of aircraft launching by giving the catapult officer the end speed of an aircraft leaving the flight deck within one second after launch completion. The device, known as the "Direct Reading End Speed Recorder," is a forerunner of equipment which may some day provide a fully automated launch.

The recorder prototype consists of a computer, printer and two repeaters. By knowing the end speed of the aircraft, the catapult officer is aided in

determining the catapult pressure needed for the following launch. End speed is now indicated by a chronograph which takes a minimum of 30 seconds to produce the answer.

Shangri La is the only carrier in the Atlantic Fleet to be equipped with the end speed recorder. After the tests, it will go back to the Burroughs Corporation for possible modifications.

ESSEX (CVS-9)

The USS *Essex*, under the command of Capt. William R. Meyer, after nearly 22 years of service, arrived for the first time in Pensacola to fill the gap left by the training carrier USS *Lexington*, absent for a yard overhaul. Its mission was to provide carrier qualification training for the Naval Air Basic and Advanced Training Commands. *Essex* operated off Corpus Christi for a time between periods spent at Pensacola.

Naval Aviation Cadet Walter D. Achuff made the 119,000th arrested landing on *Essex* in a Grumman TS-2A *Tracker*. Six days later, *Essex* rolled up its 120,000th landing when Ens. E. D. Smith, VS-30, landed in an S-2D.

SARATOGA (CVA-60)

Saratoga's 90,000th landing was made by Cdr. R. B. Carter, Executive Officer of VA-34, in an A-4C *Skyhawk*.

FORRESTAL (CVA-59)

In ceremonies aboard the flagship USS *Forrestal*, RAdm. Allan F. Fleming relieved RAdm. Samuel R. Brown, Jr., as Commander Carrier Division Four.

Lt. William E. Aylward and his helicopter crew made a successful rescue at night when tracer bullets, fired by Ltjg. R. C. Rawlings and Ltjg. R. L. McFillen, enabled the helicopter crew to spot them miles away. The two officers had had to eject from their crippled F-4B. Upon rescue, both men were flown back to *Forrestal*. The helicopter crew consisted of Lt. Aylward, Ltjg. Larry L. Scott, M. J. Napalo, AM3, and J. B. Gilbert, AM3, attached to HU-2, Det. 59.

LCdr. Carl Lott, attached to VF-103, made the 96,000th landing aboard in an F-8E *Crusader*. He was assistant navigator aboard *Forrestal* immediately before being transferred to VF-103.

BETTER TRAINING EQUIPMENT IS AIM AT NTDC

By Bill Valenteen



NAVY MEN get realistic sensations of ejection in this trainer designed at NTDC.

THE EJECTION SEAT has been standard equipment in high-speed aircraft for many years now, but the Naval Training Device Center (NTDC) at Port Washington, New York, continues to improve training methods for the emergency escape system. Project personnel have recently concluded a series of studies on seat-ejection instruction and these studies have led to procurement of devices which will provide better training

procedures for fliers. Some of the fears which normally accompany the thoughts of ejecting in an emergency can be dispelled with the right kind of ground training and NTDC keeps this in mind.

For example, the 6EQ2 series of devices provides realistic means of giving airmen practice in executing pre-ejection procedures. They also promote confidence by acquainting men with actual sensations which



THE 6EQ2 TRAINER, shown here at Pensacola, gives a flier a solid "punch" upward.

would occur if a cartridge-powered ejection proved necessary.

These trainers consist of an ejection seat and a 24-foot ramp for guiding and controlling the seat in ascents and descents. Mk 2 Mod 1 explosive cartridge, especially designed for the trainer, supplies thrust while an instructor's control panel helps determine the student's performance in going through procedures. The panel also gives equipment malfunction indications.

The seat produces eight to 15 feet of travel depending on weight, friction forces, etc. Standard flight suits, Mk IV full-pressure suits or the Mk V anti-exposure suit can be worn to enhance realism.

Another device, now in the development stage, will give fliers practice in getting rid of parachutes while in the water, especially during high wind conditions. It simulates dragging a man through water by a chute billowed in the wind. A student is yanked from a platform into a swimming pool and hauled through the water by a pulley. Through practice under safe conditions, airmen learn to get out of the harness quickly, inflate a Mae West and rubber raft and board the raft. Later, the device will be supplemented by equipment which will teach the procedures involved in helicopter pick-ups.

These efforts by the Naval Training Device Center to create realistic environments for emergency situations aid greatly in making fliers thoroughly trained to meet them.



THIS TRAINING DEVICE yanks the student into the water and by means of a pulley drags him through a pool to simulate effects of a downed airman being hauled through ocean by a chute.

SecNav Praises VX-6 Crew Cites Non-Stop Antarctica Hop

SecNav Paul Nitze has extended his personal congratulations to the aircrew members of a VX-6 plane which made an unprecedented non-stop flight from Melbourne, Australia, to Byrd Station in Antarctica. The historic flight, piloted by the unit's C.O., Cdr. Frederick S. Gallup, was made in a ski-equipped C-130 Hercules. It opened the *Deep Freeze* season (see page 24).

Mr. Nitze's message read, in part: "The pioneering and trail blazing flight from Australia over uncharted Antarctic wastes to Byrd Station is noted with pleasure. . . . The high degree of competence and skill demonstrated by Cdr. Gallup and members of his crew in the planning and execution of this hazardous flight are especially noteworthy."

RAdm. James R. Reedy, *Deep Freeze* Commander, describes the feat as "the last great long-distance flight to be made on earth." Australian air experts predict that the trans-Antarctic route will, in the future, be of tremendous value to commercial aviation. The flight covered 4420 miles in 15 hours 39 minutes.

Members of the crew included: LCdr. Benjamin Taylor; Lts. Alan Dick and George Hitchcock; Ltjg. George Wright; William S. Bow, AMSCA; James E. Zimmer, ABHC; ADJ1's Delano A. Nelson and Robert N. Oowler, Jr.; Leo Campbell, AT1;

Robert W. Berth, AE2; ADJ2's Robert C. Blumer and Allen N. Cox; and Sgt. Malcolm D. Hester, USMC.

United Airlines Makes Test New Air-to-Ground Report System

United Air Lines is participating in the first testing of a new air-to-ground automatic altitude reporting system, designed to streamline the nation's air traffic control system.

Scheduled by the Federal Aviation Agency for adoption throughout the nation within the next few years, the new electronic system will improve traffic control by letting ground controllers know an airplane's altitude and identity at all times—automatically. This will reduce unnecessary workload on pilot and controller by eliminating radio voice reporting.

Successful testing of both airborne and ground equipment has been conducted in the New York area involving United 727 jetliners and DC-8F jet freighters. United, the first airline to participate in these tests, has its entire 727 fleet and its three DC-8F's equipped with the necessary airborne equipment for automatic altitude transmission.

In the New York area tests, United jets flying in the control area are being interrogated by FAA ground equipment, and altitude information is sent back from plane to ground facility by means of an electronic signal. This signal is converted by a

computer on the ground into numerical information displayed directly on the air traffic controller's radar scope. Altitude is shown in hundreds of feet next to the "blip," or radar echo, of the reporting aircraft.

The air traffic control radar beacon system, when fully operational, will permit automatic altitude reporting by means of pulses, or codes, at any altitude from sea level to 100,000 feet, in 100-foot increments.

Security for Test Materials "Training Bulletin" Stresses Need

An article in the *U.S. Naval Training Bulletin* (Winter, 1964) discusses the problem of protecting the security of USAFI tests within the Navy.

Bureau of Naval Personnel Manual (Article D-2103) and BUPERS Instruction 1560.6B contain guidance in administration of the tests. Several Navy units, including some aviation ships and units, have reported compromises of the tests and answer sheets. Compromises jeopardize the reputation of the entire off-duty education program of the armed services and the civilian accreditation based on that education.

BUPERS also points out that investigations of test compromises can lead to letters of admonition or even court martial cases. The training bulletin article urges all educational services officers to study the directives concerning tests and testing procedures.



SEATTLE-BASED icebreaker USS Staten Island (AGB-5) displayed muscle power last fall off Oregon coast when she towed 71,000-ton Kitty Hawk for three hours, reaching a sustained speed of eight knots. Objective of exercise was to determine the ability of 6000-ton AGB-5



and ships in her class to tow Forrestal-class CVA's. CVA-63 was en route to Puget Sound for overhaul. Staten Island used automatic electric towing winch with cable having breaking strain of about 300,000 pounds. Ship is now in Antarctic Operation Deep Freeze.

VA-85 MAKES 'INTRUDER' TRANSITION



MECHANICS from the power plants division of VA-85 undergo instruction in the operation of the A-6A Intruder jet engine systems.



FLIGHT PHASE of transition training included familiarization, FMLP, navigation and bombing hops with emphasis on DIANE techniques.

THE BLACK FALCONS of Attack Squadron 85, winner of the ComNavAirLant "E" as an A-1H squadron in fiscal 1964, have rejoined the Fleet as the second operational A-6 Intruder squadron. Months of hard work under the tutelage of VA-42's *Green Pawns*, A-6 replacement squadron, preceded VA-85's complete transition to their new jets. Both units and VA-75, the first Intruder squadron, are based at NAS OCEANA.

Transition began in November 1963 when enlisted men commenced a two-week period of line maintenance instruction during which they functioned with VA-42 personnel in pre-flight, post-flight and general maintenance procedures. After this phase, the trainees attended one or more of over 30 technical courses taught by the Naval Air Maintenance Training Group (NAMTG). Comprehensive in nature, these courses emphasized the Digital Integrated Attack Navigation System (DIANE). Courses ranged in length from two days to more than four months for the AN/ASQ-61 ballistics computer ("D" Level) maintenance class. The trainees then returned to VA-42 where they applied their skill on the job.

Instructors came from Oceana's maintenance department, VA-42 and the Grumman Aircraft Engineering Corporation. They trained the more than 200 members of VA-85's main-

By Ltjg. Frank Wagner, USN

tenance crew, which had a nucleus of highly experienced senior petty officers and a larger number of younger sailors.

Pilots and bombardier/navigators (B/N's) received a two-week course in airframes and engines administered by the Naval Air Maintenance Training Detachment. Next, pilots flew nine fam flights which included conventional bombing and Field Mirror Landing Practice (FMLP). VA-42 B/N's then served as instructors on visual and simulated instrument low-level navigation hops and also on those stressing radar target identification (RTI). Following this, pilots practiced the several weapons delivery

modes available with DIANE system.

B/N training was similar to that for pilots except that it was abbreviated in the fam stage so that more time was allowed for radar-type flights, especially the RTI phase.

Flight training was capped by a series of three realistic mission profiles of about five hours length each. On a typical low-level strike, pilots and B/N's would launch from Oceana, proceed to Marquesas Key near Key West and release a 2000-pound bomb with a loft maneuver before returning to the starting point at Oceana.

The *Black Falcons* completed transition in September. Commanded by Commander B. J. Cartwright, VA-85 is a unit of Carrier Air Wing Eight.



ON-THE-LINE, practical training for the A-6 Intruder was administered by VA-42 to the more than 200 maintenance personnel from VA-85. Both squadrons are home-based at NAS Oceana.

OCCCLUSIONS

Lt.N.F.O'Connor

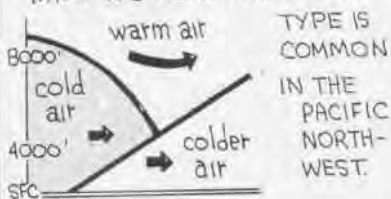
1 DUE TO THE GENERAL WEST-TO-EAST MOVEMENT OF FRONTS, IT IS NOT UNCOMMON FOR A COLD FRONT TO OVERTAKE A WARM FRONT. THIS IS THE OCCCLUSION PROCESS.



2 WHEN THE OCCCLUSION PROCESS TAKES PLACE, ALL THE WARM AIR CAUGHT BETWEEN THE FRONTS IS LIFTED FROM THE SURFACE.

THERE ARE TWO TYPES OF OCCCLUSIONS, THE WARM TYPE AND THE COLD TYPE.

3 THE WARM TYPE OCCURS WHEN THE AIR IN ADVANCE OF THE WARM FRONT IS COLDER THAN THE AIR BEHIND THE COLD FRONT. THIS



TYPE IS COMMON IN THE PACIFIC NORTH-WEST.

4 THE COLD TYPE EXISTS WHEN AIR IN ADVANCE OF THE WARM FRONT HAS A HIGHER TEMP. THAN THE AIR IN THE REAR OF THE COLD FRONT.



5 CONTINUOUS PRECIP. ALONG WITH AN EXTENSIVE CLOUD COVER IS USUALLY ASSOCIATED WITH THE WARM TYPE OCCCLUSION, WHILE SHOWERS AND THUNDERSHOWERS ARE FOUND AHEAD OF AND BEHIND THE COLD TYPE OCCCLUSION.



6 SINCE THE OCCCLUDED FRONT IS A COMBINATION COLD AND WARM FRONT, THE RESULTING WEATHER IS A COMBINATION OF THE 2 TYPES. THE MOST VIOLENT WX OCCURS AT THE TIP OF THE OCCCLUSION.



'Steel Pike' Was Successful Americans, Spanish Participated

Operation *Steel Pike I*, the largest peacetime amphibious operation in history, was concluded in October when 28,000 Marines aboard 80 ships returned to the U.S. from Spain, site of the exercise. About 30,000 American and Spanish personnel participated in the full-scale assault. Nearly 60,000 men comprised the task force which demonstrated the continent-to-continent striking power of the Navy-Marine Corps team.

Dignitaries on hand at the beach near Huelva, on the Atlantic coast

where the initial assault phase was conducted, included: Under SecNav Paul Fay, Gen. Wallace M. Green, Jr., Marine Corps Commandant, Sen. Richard B. Russell, chairman of the Senate Armed Services Committee, Congressman L. Mendel Rivers, and many high-ranking officials. VAdm. John S. McCain, Jr., Atlantic Fleet Amphibious Force Commander, and Commander of the Naval Task Force, directed the assault from his flagship, the USS *Pocono*.

Operating from USS *Lake Champlain*, Air Group 54 maintained electronic surveillance of sea areas for 21 days to thwart submarine attacks on

the ships of the amphibious assault force by "enemy" undersea elements. Air Group 54 is comprised of VS-22 and VS-32 which fly the twin-engine Grumman S-2 *Trackers*; HS-5 which flies the Sikorsky SH-3A *Sea King*; and a four-plane detachment of Douglas EA-1E *Skyraiders* from Carrier Airborne Early Warning Squadron 33. Commander Thomas H. Griffin, the air group's commander, reports that his aircraft logged 3446 flight hours in the 21 days.

A Spanish Marine battalion bolstered Lt. Gen. J. P. Berkeley's 2nd Marine Expeditionary Force consisting of 28,000 men from the General's Fleet Marine Force Atlantic Command. Other groups were flown inland by 100 helicopters of MAG-26 which launched from the ships *Okinawa*, *Boxer*, *Guadalcanal*, *LaSalle* and *Raleigh*. More than 3000 troops and over 250 tons of cargo were hauled by the helos on D day.

Participating units in the operation were the 2nd Division and Force Troops, both home-based at Camp Lejeune. The 2nd Marine Aircraft Wing accomplished the largest Marine trans-Atlantic operation ever attempted during the first phases of *Steel Pike* when four squadrons arrived at NS ROTA. The 3700-mile flight by 56 fighter and attack planes was dubbed *Highboy VII*.

VMF(AW)'s 235 and 451, VMA-533 and VMCJ-2 were the squadrons. KC-130F aircraft from VMGR-252 provided inflight refueling and logistic support.

In the early stages of *Steel Pike*, men of MAG-31 landed with Battalion Landing Team (BLT) 1 aided by sailors from Mobile Construction Battalion 8 (MCB-8). They "secured" a beachhead and built a SATS strip 4000-feet long. It was equipped with radar, radio and other support gear within six days. Shortly after its completion VMF-451 flew 46 sorties during "D" day. Assisted by MCA-533 and VMGR-252, the squadron staged a working demonstration of the strip.

Ships from the Military Sea Transportation Service and the U.S. Merchant Fleet also actively participated with Navy ships in the exercise.

Steel Pike I was a test of the strategic mobility of U.S. amphibious forces and part of a program to establish and maintain readiness in order to quickly reinforce our allies.

Editor's Corner

Gram-paw's Contemporary. In United Aircraft's quarterly *Beehive*, Fall issue, a veteran Canadian bush pilot (42 years of flying in the Far North) was asked, "Do you have any rules that you go by in flying this country?" His answer was, "Don't buck weather. Always have another way out." To which response, Gram-paw Pettibone says, "I been saying the same thing for years. We must be graduates of the same school."

ALL EYES DOWN. If the eyes of the men of NARTU Norfolk appear downcast, there is good reason. As part of a safety campaign aimed at preventing foreign object damage (F.O.D.), NARTU's safety officer, LCDr. Frank Keyes, each month "plants" a foreign object somewhere on the flight line. The object is well publicized (pictures on bulletin boards) in advance of the planting. Finder of the object is awarded extra liberty.

Extra-bazardous Flight Deck. Reliable sources report that the carrier *Intrepid* sustained unusual casualties while off the Carolina coast on the night of October 5. A swarm of birds, estimated at 4-5000 in number and described as "yellow-breasted, black and white, chirping, screeching birds," settled on the flight deck at night. The casualties were a sailor who suffered a bird bite on his hand and another who lost his white hat when a bold bird lifted it from his head and dropped it over the side. The birds finally were chased from the deck. "Whatever the explanation," reported the ship's newspaper, "the bizarre happening, à la Alfred Hitchcock, will long be remembered."

IT'S A BIG CITY. In his final days aboard the USS *Yorktown*, Boilerman First Class Herbert Lovette had his first look at the ship's bridge in action. A member of the ship's company since June 1956, when he reported as a Fireman Apprentice, Lovette was invited to the bridge by Capt. R. S. Osterhoudt to watch the ship's control forces at work. After eight and a half years in the ship, Lovette was overdue for transfer to shore duty.



WITCHES WELCOME. When VP-46 ended its deployment to Alaska, Cdr. Robert Cooke received this roof-top welcome. Then Mrs. Cooke and her "goblins" hurried, with other families, to meet the squadron at Moffett Field.

Help Stamp out Coin Shortage. When the country-wide coin shortage became acute at NAS NORTH ISLAND, officers and men of VRF-32 reached into their piggy banks at home, came up with 22½ pounds of pennies and silver. The money, worth \$115 in bills, was turned over to the station exchange officer to help ease the change problem. It was hoped that all units at San Diego might do the same to bring more coins into circulation.

SIGNS OF THE TIMES. While being interviewed about his tour of duty in the 1930's aboard the earlier carrier *Enterprise* (CV-6), Senior Chief James Ziegler of VA-66 told a reporter for the *Big E's* newspaper, "She was the most modern ship in the world, so modern that every man aboard had his own bucket and a rack to stow it on."

"A bucket?"

"Sure. You don't think we had wash basins, showers or laundries on board, do you? She was the first ship I was on that had a bunk for every man in the crew and we considered ourselves very lucky."

PAY LINE BONUS. Doctors on the *Shangri La*, without prior announce-

ment, stationed corpsmen at the end of the officers' pay line. In less than two days the job of giving influenza inoculations was completed. Usually the shot program takes a week.

First Class Air Mail. When a jet training aircraft returned to its Chase Field, Texas, base following a cross-country flight, the fuselage carried a message to a VT-24 sailor: "Please tell Work that his big brother Willy re-fueled this aircraft." The message was addressed to James Work, ADJ3, from his brother Willy, VF-162, NAS MIRAMAR.

POETRY IN MOTION. A message was sent from the *Wasp* (CVS-11) to the USS *Warrington*: "We will keep the rock and return the doc at two by the clock via modern roc." Translated, it meant that the *Warrington's* medical officer after having had a kidney stone removed, was being returned by helicopter at two o'clock.

"Well Done, Honorable Shoes." When Dale LaFleur, retired as postal clerk aboard the USS *Coral Sea* in September, he asked that his shoes be buried at sea after he was gone. He had worn the shoes on almost every day of 43 months he served aboard the carrier. Friends placed the shoes in a box, held an over-the-side burial rite for a battered set of shoes described as being "of naturally polished suede with a shine acquired from old age and constant use, beautifully decorated with multi-colored paint spots, with soles slicker than a newly waxed deck."

COMPUTER MEN, PLEASE NOTE. In a day when the machine accounting system has taken over most of the Armed Forces' computing tasks, the Special Services Department at MCAS Iwakuni, Japan, announced formation of a new class to study the operation of the abacus.

Deft-nitions. Men aboard the USS *Kearsarge* have come up with new phrases for combat pay. The extra-hazardous pay is called *fright pay* or *scare skins*. ("Skins" is a derivative of "flight skins," the monthly certificates required by a disbursing office to prove flight accomplishment.) Said the ship's newspaper, *Kearsaga*, "We realize this is a deadly serious business. But we still get a chuckle over the seeming innate ability of American military men to find a laugh even in this dark corner of the world."

LETTERS

Welcome Words

SIR: Did you know that *NavAirNews* is the most-read Navy publication aboard the aircraft carrier *Intrepid*?

It's true.

From Capt. Smith (and our embarked flag officer, Adm. White) on down, your magazine proves of greater general interest to *Intrepidmen* month-by-month than any other single Navy magazine. And its morale value is almost immeasurable.

What's the reason? Simply that *NavAirNews* best reflects what men do on aircraft carriers—what our job is. Because of this, *Intrepid* has come to think of it as "our" magazine, too. As such, we appreciate the opportunity of contributing from time to time.

We'll be looking forward with continued interest to each month's copy of *Naval Aviation News*. It's unquestionably tops aboard this flattop.

J. A. DUNAWAY, JR., LCDR.
Service Information Officer

† Thanks.

An Invitation

SIR: As you may know from the records, a number of aviators from the United States Navy were disembarked from the battleships and cruisers taking part in the bombardment during the Allied invasion of Normandy in June and July of 1944. These officers and men were attached to No. 3 Royal Naval Fighter Wing, which I then commanded, and they flew British *Seafire* aircraft on bombardment spotting duties from the Royal Naval Air Station, Lee on Solent.

It is now my intention to hold a 21st Anniversary Reunion Party in the United Kingdom at a date to be fixed soon after July 22nd 1965. If any are able to attend, they should either contact me or LCdr. Harry Simpson, RN (Ret.), Airwork Services Limited, Lee on Solent, Hants.

N. G. HALLETY
Captain of the College

Royal Naval College
Greenwich, England



VR-911, based at NAS South Weymouth, Mass., is advertised every day by Edward J. Walsh, ADC (left), of Warwick, R.I. Chief Walsh explains to A.A. Santor, ADC, that each year his auto license number is the same.

Graduate Level Courses

SIR: In an effort to extend the educational facilities of the Naval War College to those many officers who unfortunately are not able to attend the resident courses in Newport, R.I., extension (correspondence) courses, designed to assist officers in preparation for higher command, are offered. These courses are of the subjective type on a graduate level. They enable the enrollee to gain a commendable knowledge of those fundamentals, military and nonmilitary, essential to a proper understanding of the art and science of modern warfare and international affairs.

Naval War College extension courses are revised at appropriate intervals to provide a more effective program for non-resident students. It is through these periodic revisions that courses are updated to more nearly parallel the resident course program and to reflect the latest changes in organization, weapons systems, and international affairs. Additionally, and perhaps of most interest to officers in the Fleet, courses have been redesigned to better fit the needs of the busy active duty officer.

A quick list of available extension courses is as follows: Command Logistics, Military Planning, Naval Operations, Strategic Planning, National and International Security Organization, Counterinsurgency, International Relations and International Law.

The courses in Command Logistics, Military Planning and Naval Operations are of particular interest to those officers destined for operational or planning staff duties. Other courses are broader in aspect and constitute time-proven educational preparation for staff and command billets. With continuing interest shown by all levels of government in insurgency operations, the unclassified counterinsurgency course is of particular value in this area.

For those officers who successfully complete one or both of the Naval War College's "Package Plans" of extension courses, a special Certificate of Meritorious Achievement is awarded.

The extension courses described above are available to all officers of the U. S. Armed Services of the grade of Naval lieutenant (or equivalent) and above, active or inactive—with a liberal waiver policy in effect even as to this grade requirement. For further information, write to the Extension Education Department, Naval War College, Newport, Rhode Island, 02844.

E. J. ROWSE
Col., USMC
Head, Extension
Education Department

Naval War College
Newport, Rhode Island

NAVAL AVIATION FILMS

Among the latest list of motion picture films released by Head, Film Distribution Division, U.S. Naval Photographic Center, are the following titles of particular interest

to officers and men in Naval Aviation:

MD-7281EJ—Unclassified—*Armed Forces Military Report No. 627, The Wonders of Weightlessness*. How space men learn to adapt themselves to weightless environment using an astronaut maneuvering unit. 10 minutes.

MN-9480C—Unclassified—*Vision in Military Aviation—Inflight Recognition and Closure*. Recognition of closure and avoiding aircraft in high-speed, high-altitude flight operations. Visual problems at high speed. Apparent size of target aircraft, empty visual fields, contrast discrimination, reaction and closure time. How to alleviate effects. 20 minutes.

MN-9480D—Unclassified—*Vision in Military Aviation—Errors in Vision*. Visual acuity in flight operations. Nearsightedness, farsightedness, astigmatism and heterophoria. Correction of refractive errors. What to do if symptoms of visual error develop. 18 minutes.

MP-10006—Unclassified—*Antisubmarine Warfare/History—Operation UNITAS (Portuguese)*. UNITAS Operations I through IV. Joint U.S. and South American maritime nations participating in antisubmarine warfare exercises. Port visits in South America. 27 minutes.

MS-10006—Unclassified—*Antisubmarine Warfare/History—Operation UNITAS (Spanish)*. Same as Portuguese version. 27 minutes.

The following films were declared **obsolete**:
MN-1006H—*Fighter Direction, Principles of Interception*.

MG-1862—*Open Sea Seaplane Operations*.
MN-3112B—*Flying the Weather Map, the Hougozit Chart*.

MN-3616A—*U.S. Navy Aircraft, Expensible Radio Sonobuoy, How it Works*.

MG-4327—*Air-Sea Rescue*.

MN-6483A—*Expensible Radio Sonobuoy in Air-Sea Rescue, Description*.

MN-6556G—*Amphibious Warfare Instructions, Air Operations*.

MN-6657—*Carrier Controlled Approach*.

MN-6706B—*Air Intercept Control, Part 2*.

MN6706D—*Control of Jet Air Interception, Airplane and Pilot*.

MN-6830—*The Airship, Fundamental Principles and Operations*.

MH-7309A—*Marine Close Air Support, The Air Ground Team*.

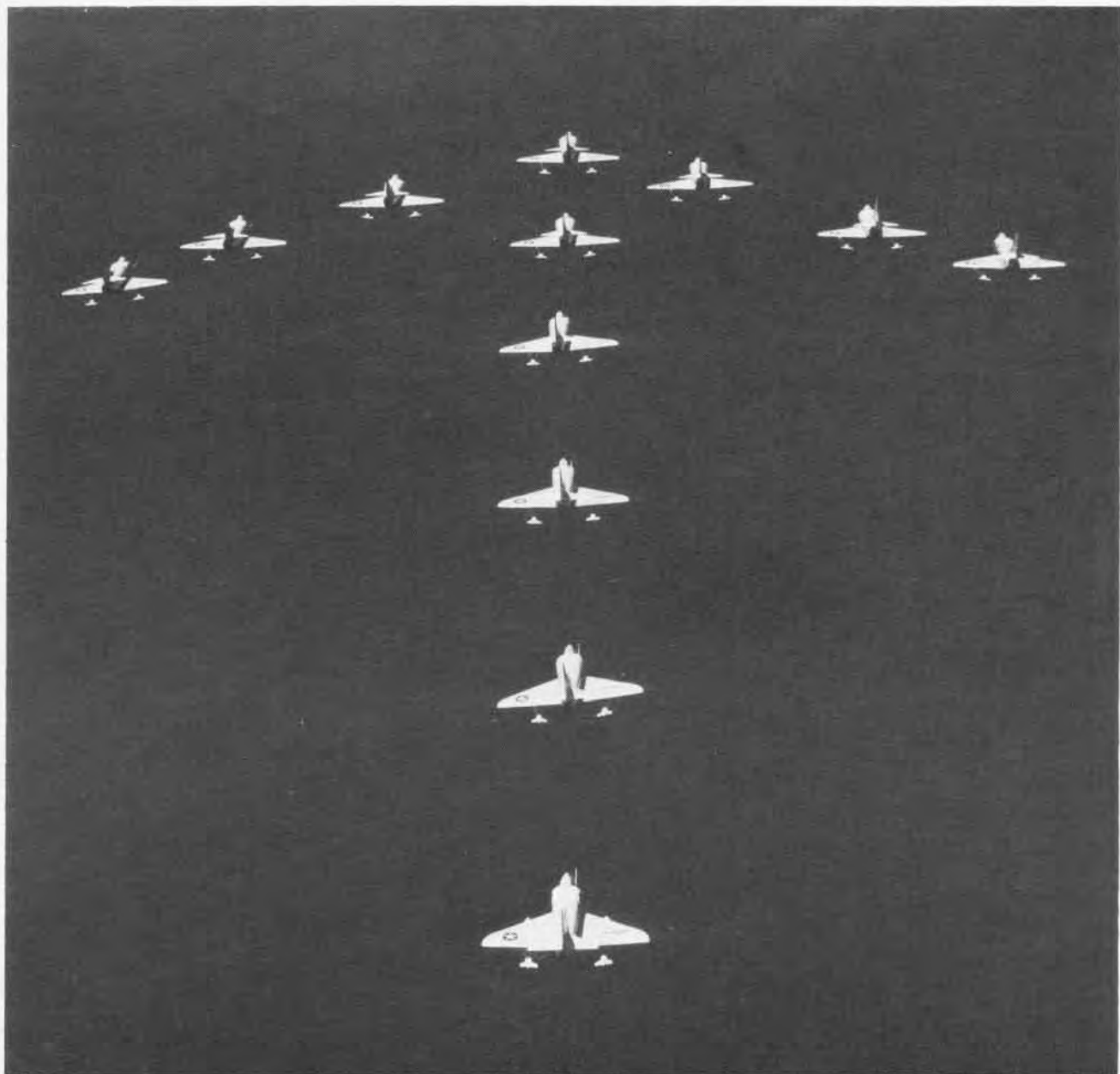
MN-7387—*El Centro Story*.

MN-8301—*A Career for You at the Naval Air Missile Test Center*.

MN-9394—*Confidential—Regulus I, Tactical Capabilities*.

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1551.1C.

• When a ski-equipped C-130 *Hercules* comes in for a landing at a field away from Quonset Point, home station for VX-6, the tower operator asks for a check on the landing gear before attempting touch down. Squadron pilots enjoy answering, "Gear down, skis up." There always seems to be a slight pause as the tower operator thinks this message over.



SQUADRON INSIGNIA

These A-4 Skyhawks, flying in the spear formation depicted in their insignia, represent the striking punch of Attack Squadron 106. Based at Cecil Field, the Gladiators operate in the 2nd and 6th Fleets with the Shangri La. Formed as VBF-17 in 1945, VA-106 celebrates its 20th anniversary this month. Skipper is Cdr. C.B. Crockett, Jr.



Osborn



Great Horned Toadies! It's 1965!

This issue of Naval Aviation News marks the 22nd anniversary for Grampaw Pettibone and his expletive/explicative friends. It's a traditional time to renew subscriptions to Naval Aviation News so pilots who have enjoyed Gramps' analyses since 1943 will continue to receive personal copies of his pithy comments. Send check or money order to Superintendent of Documents, Government Printing Office, Washington, D.C. (\$2.50, annual rate; \$3.50, foreign mailing).