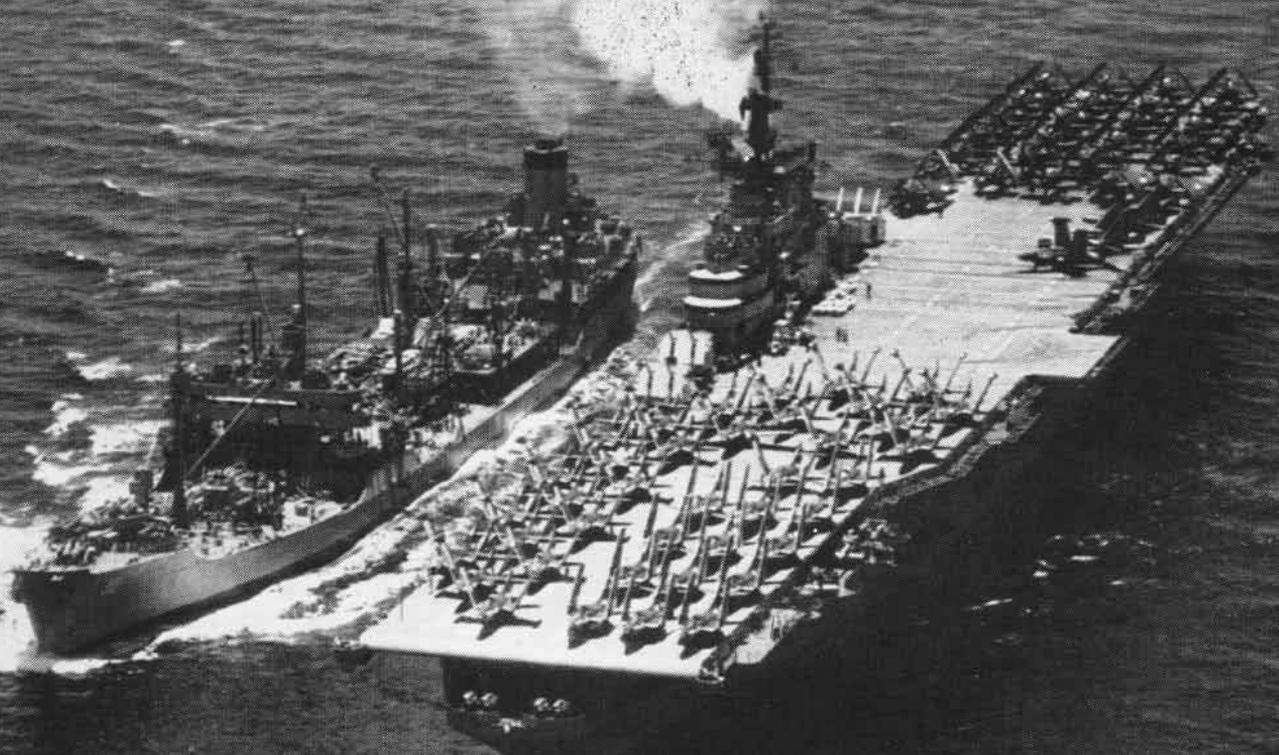


NAVAL AVIATION

NEWS



JUNE 1955
NavAer No. 00-75R-3

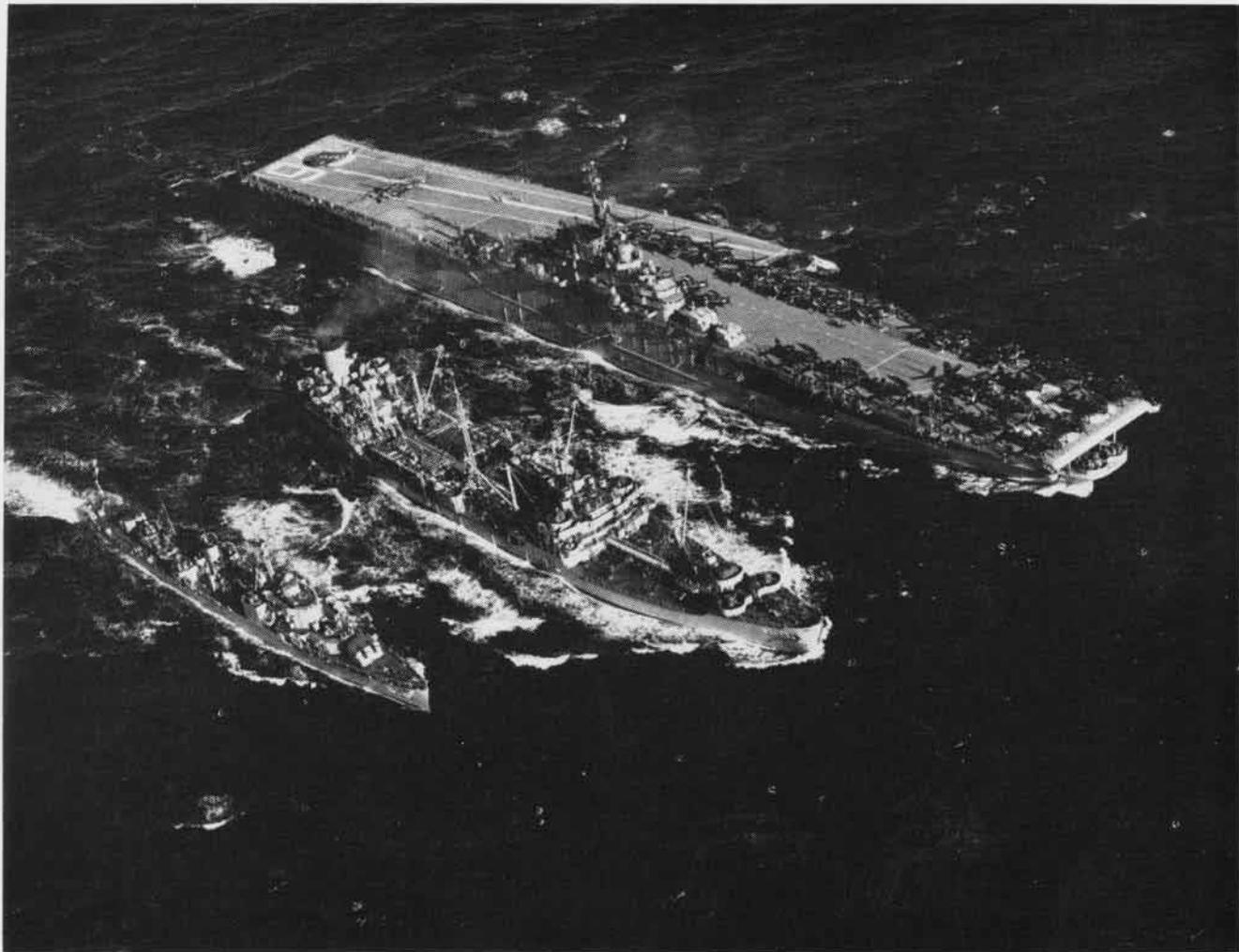




ANOTHER BLAST

Some 2,000 Leathernecks took part in the series of tests of an A-bomb blast conducted by the Department of Defense in conjunction with the Atomic Energy Commission. In pre-blast drills, Marines learned to take cover in trenches and make all possible speed to obtain full protection from bomb.





THE LONG LOGISTICS LINE

HERMAN Melville, in describing the inexhaustible appetite of one of his characters in the novel, *Moby Dick*, wrote, "For what he ate did not so much relieve his hunger as keep it immortal in him." This might be said with equal truth of aircraft carriers. The great and incessant demands of these man-built masters of the sea and the sky suggest that their hunger, too, is never appeased, but requiring more and more, is apparently insatiable.

Great aircraft carriers in Fleet parade look sufficient unto themselves and, indeed, when they strike, they deal it out on their own. But actually their power comes from the support they are given by ships carrying the very sources of life to these mighty leviathans.

Logistics—not a new word in our time, but one

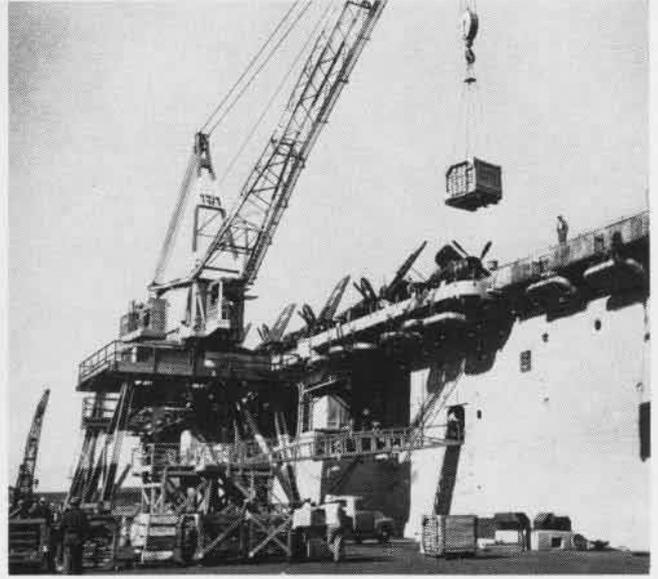
with which the last 15 years have given us a special familiarity—is the very heart of the carrier story. It provides the punch lines and the climax, for it is the steady supply of aircraft, fuel, equipment, food and ammunition that makes an aircraft carrier a powerful part of the Fleet.

In the 160-year history of the Navy Supply Corps, its mission has been to provide the officers and men of the Fleet with what they need where they need it when they need it. The Corps has furnished that same efficient service to the latest ship of the line, the aircraft carrier.

Aircraft carriers count on the small and often ungraceful ships of the Service Force to furnish them with the thousands of items required to keep them in full commission and, well supplied, in fighting trim.



CREWMEN AND SHIP'S COMPANY MARINES LOAD STORES ON CVA



IN 1950 USS VALLEY FORGE WAS LOADED FOR ACTION IN KOREA

IN WORLD WAR II, there were tremendous, intricate and demanding problems in supply. In essence, the vast conflict was a battle of logistics. History is replete with instances of great defeats rooted in a failure to meet the inexorable necessity of having supplies reach the combat theater at the critical time.

As Adm. Raymond A. Spruance once wrote, "A sound logistic plan is the foundation upon which a war operation should be based. If the necessary minimum of logistic support cannot be given to the combatant forces involved, the operation may fail, or at best be only partially successful."

The great line of supply in WW II reached from the United States to the far reaches of the Pacific and Atlantic. As ships delivered their freight to the Fleet, they went back to supply points. Whether it was munitions or repair parts, or fuel, or food, or planes, the line held. It was this endless system of supply that was a significant factor in bringing the battle to the shores of the Japanese Empire. Admirals have called this mobile and continuous supply system the Ameri-

can "secret weapon." It is an appropriate designation.

One historian commenting on the supply system in the Pacific has written, "No matter how prosaic the description of it, and no matter how one takes for granted the bold planning and development of a hundred vital details that made the system a success, the fact remains that it was something never attempted before, something on which the enemy definitely did not plan in their high councils of war, and something that worked well to permit a gigantic assembly of powerful combat ships to remain at sea in hostile waters and thousands of miles from any permanent base for an indefinite period of time."

The same efficiency of supply operated in the Korean conflict. Again mobile support in the Pacific proved workable and dependable. The big carriers thousands of miles from home carried out their mission with no lack of logistic support. As some one has said, "A main battery of monkey fists, highlines, housefalls, repair shops and the like may not be glamorous as booming 16-inch guns and screaming jets, but



BARGE LOAD OF AF PLANES WILL BE TRANSPORTED BY NAVY CVE'S



HERE USS CHOURRE TRANSFERS CARGO TO THE BIG ESSEX



HELICOPTER PREPARES TO REMOVE SUPPLIES FROM USS MINDORA



GALLONS AND GALLONS OF AVGAS ARE CONSUMED BY OUR FORCES

the life blood of a deployed Fleet rides in the ship bottoms of a Mobile Logistic Support Force."

Supplementing surface supply are the air transports of the Fleet Logistic Air Wings. How great a role air transport could play was shown in WW II. Early in that conflict, the Naval Air Transport Service was created. It played a major role in supply, carrying critical implements of war and bringing 1,000 pints a day of plasma and whole blood to the forward areas.

As the war went on, the service of NATS increased in size and scope. In August 1945 NATS flew a total of 39,733,000 ton miles carrying 11,400 tons of cargo and mail and 85,000 passengers over a network of 63,251 route miles. Four hundred and twenty-nine aircraft and a total personnel of 26,604 were involved in this enterprise. While this amount of traffic in men and materials challenges the imagination, the ships of the train bore the principal onus of supporting the Fleet, the Marines, the Army and the Army Air Force 8,000 miles from our western shores.

But as one admiral pointed out, NATS' primary contribution [was] not one of weight lifted, or distance covered, but rather the recapture of time lost or the accelerated availability of critical components necessary to complete the logistic support of a tactical operation. There [was] also

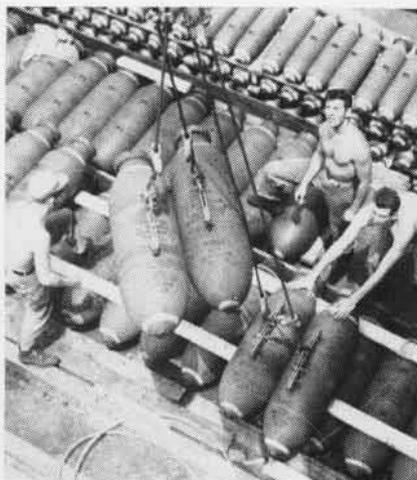
the humanitarian function of a rapid evacuation of wounded."

Naval supply, whether it is shipped by surface transport or air, depends primarily on 55 Navy supply installations. The largest of these are the two Naval Supply Centers at Oakland, California, and Norfolk, Virginia. It is from these centers that an endless stream of provisions, equipment and supplies flows. NSC OAKLAND is specifically designed to provide complete supply support to the Pacific ocean area, plus much of the West Coast. To do this virtually the entire range of Navy supplies is stocked, including all in all, about 750,000 items. It might be described as one vast department store for the Fleet.

The supply departments at five naval air stations are best situated to furnish immediate supply support for aircraft carriers: Quonset, Norfolk and Jacksonville on the East Coast, and North Island and Alameda on the West Coast. As an example of their work, take Alameda. The number one job of its supply department is to provide material support to AirPac, aircraft carriers, air groups, FASRons, patrol squadrons and transport squadrons based at Alameda and at her dependent air stations. NAS MOFFETT FIELD, NAAS FALLON and NAAS MONTEREY rely on Alameda for major support. Alameda also has the great responsibility of sup-



R4D TRANSPORTS SELF-SEALING GAS TANK



BOMBS ARE LOADED ABOARD THE CORAL SEA



CATAPULT PART REACHED USS ESSEX BY AIR

plying the structural parts needed for Navy's Grumman, Douglas, Lockheed, and North American planes operating west of the Mississippi.

To do this, the Alameda Supply Department carries thousands of naval aviation supplies, equipment and parts. Personnel receive, store, issue, pack, ship and account for thousands of items each day. Because so much aviation material is fragile, it requires special care in packaging and shipment. The varied stock at Alameda includes approximately 200,000 items valued at some 245 million dollars.

Proud of its role as one of the primary outfitting points for Pacific based carriers, NAS ALAMEDA has never fallen short on a replenishing operation.

The Aircraft Materiel Office (AMO) of Fleet Air Alameda, is essentially an expediting office staffed by specialists who will give any efficiency expert a run for his money. AMO acts as the "go-between" for Fleet units being outfitted and the sources of supply for critical items.

During the past two years, NAS ALAMEDA has outfitted numerous carriers including the USS *Belleau Wood* (CVA-24) which was transferred to France under the Mutual Defense Assistance Program; the USS *Hancock* (CVA-19); and the USS *Shangri-La* (CVA-38). The biggest replenishment job was for the USS *Oriskany* (CVA-34). NAS ALAMEDA assembled supplies and material for this carrier for months.

Supply Department personnel are now in the process of outfitting the USS *Lexington* (CVA-16), and the USS *Bon Homme Richard* (CVA-31) which has been undergoing conversion at the San Francisco Naval Shipyard.

About six months prior to a carrier's commissioning date, a directive is issued from the Bureau of Aeronautics with instructions to cognizant activities responsible for furnishing aviation material and equipment. This instruction covers approximately 6,000 items to be assembled and delivered.

Next ComAirPac assigns a deadline delivery date and the location for material to be loaded aboard the carrier. The outfitting assembly point also advises the NAS Supply Department to divert material to the next replenishing point

if supplies fail to arrive five days prior to departure. A preliminary shortage list is prepared 20 days before the carrier leaves the initial replenishing point, and this list is screened by the ship's personnel, thereby eliminating items which may have been received direct.

On the date scheduled for sailing, a shortage report is prepared and forwarded to the ship. Responsibility for follow-up on all shortages is vested in the subsequent outfitting assembly point.

Well over 1,000 Air Force planes were shipped from NAS Alameda in 1954. From McClelland AF Base, the aircraft were loaded on barges and brought down the Sacramento River and San Francisco Bay to the air station. There they were put aboard MSTC carriers for shipment to AF bases.

Surface supply ships today include tankers (AO's), ammunition ships (AE's), refrigerated ships (AF's), cargo ships (AK's and AKS's), repair ships (AR's), aviation repair ships (ARV's), an aviation supply ship (AVS) and seaplane tenders (AV's and AVP's). During WW II, there were 40 different types of auxiliary ships employed in the Pacific.

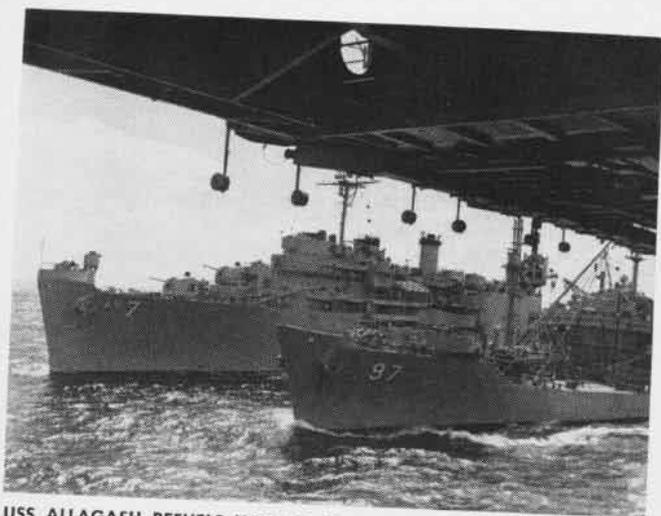
A PRIMARY mission of the Navy is to keep the sea lanes open for use. Sending ships out to sea is the first step. Keeping them supplied and ready for operation often involves replenishment at sea.

The first significant replenishment operation was performed in the fall of 1899 when a collier, the USS *Marcellus* installed a marine cableway on her deck and while being towed, transferred coal to the USS *Massachusetts*. Fourteen years later, still using the astern-towing method, the Navy had increased its delivery rate of coal at sea to four times the rate of the 1899 trial. Since then, the alongside method has been adopted, and the delivery time of fuel and other supplies underway has been substantially reduced.

Theoretically a ship should be able to stay at sea the entire period between major overhauls. Oil, ammunition, food and mail as well as all other material could be delivered. Personnel could also be rotated. Although this is not done



A HUGE FLOATING CRANE TOWERS OVER THE PRINCETON ANCHORED NEAR JAPAN TO RECEIVE SUPPLIES DURING THE KOREAN CONFLICT



USS ALLAGASH REFUELS HORNET AND CURRITUCK SIMULTANEOUSLY



THE USS STEMBEL (DD-644) ATTEMPTS APPROACH FOR REFUELING



THE USS YORKTOWN REFUELS DESTROYER BAUSELL WHILE UNDERWAY



THE NAVY'S SEVENTH FLEET REPLENISHES AT SEA OFF FORMOSA

for such long periods, the fact that it could be done indicates the great possibilities of replenishment at sea. It makes it possible for ships of the line to go thousands of miles away and remain in full operating readiness.

In at-sea replenishment, every effort consistent with safety is made to reduce the time required to accomplish it. This means that the crews must be well trained in the operation. Seamanship of a high quality is required since there is a greater danger of collision during replenishment than under ordinary conditions.

All ships may be refueled by tanker. Normally, however, the tankers refuel the capital ships which, in turn, replenish the smaller vessels. A tanker frequently refuels a carrier and a cruiser or battleship at the same time these ships are refueling destroyers and other small ships.

In putting aboard stores, supply ships may deliver 600 tons or more of various equipment within three or four hours. The aim of off-loading at sea is to do the job fast.

But weight is not the only measure of logistic efficiency. During one day's operations in Korean waters supply Task Force 77 in 1952, the "logistic" ship, USS *Chourre*, transferred 1108 items of aviation spare parts weighing 76,000 pounds. The ability to supply a variety of needed parts to

fill requirements involves vitally important considerations.

Aircraft for the big carriers are generally put aboard at the CVA's home port. During WW II, however, escort carriers were frequently used to transport aircraft to the forward zones. Replacement aircraft were often flown from the CVE directly to the big carrier, but generally the CVE's took the new craft to an advanced base. Once the aircraft were put in flying condition, they were loaded on a CVE for further transfer to a CV.

CVE's were put to similar use in the Korean conflict. For example, the *Cape Esperance* (CVE-88) crossed the Pacific several times, her decks lined with aircraft ranging from single engine reconnaissance aircraft to twin-engine transports that have a wing span wider than the ship's flight deck. Cargoes consisting of troops, air and ground stores, and squadron personnel were frequently deposited in forward positions in Korea, courtesy of transport CVE's.

Air transport which had already proved its worth in WW II played an even greater part in logistics in Korea. Two outstanding organizations—the Military Air Transport Service and the Fleet Logistic Air Wing, Pacific—showed how critical material and key personnel could be transported swiftly to strategic points. Fleet Logistic Air Wings



AN AIR GROUP IS BEING UNLOADED FROM PRINCETON AT ALAMEDA

were formed to provide Fleet support where MATS cannot meet Navy requirements. They provide air transport over routes of sole interest to the Navy and ferry naval aircraft within the continental United States.

The advantage of air transport was dramatically illustrated in 1952 during the Korean conflict when a two-and-a-half ton piece of machinery, a new braking ram for the catapult, was needed by the USS *Essex*. The nearest cylinder was 10,000 miles away at NAMC PHILADELPHIA, and the *Essex* at Yokosuka was to return to the operating zone.

At that point, a dispatch was sent requesting the 4,665-lb. steel part, and the *Essex* proceeded to Korean waters. Four days later after keeping up with the other carriers in launching of aircraft even though the *Essex* had only one catapult in action, the carrier went to Sasebo.

The new cylinder had arrived, having come the entire distance from Philadelphia by air. It had been shipped by com-

mercial airline to the West Coast, by FLOGWing Pacific to Hawaii and by MATS to Sasebo.

Catapult experts from the United States pitched in, and with 31 men of the catapult crew, worked steadily for 66 hours. Five days after she had left the line, the *Essex* was back with Task Force 77. The whole complicated operation, from the discovery of the broken ram to the final installation of the cylinder had taken only 12 days.

Codfish Airlines, Pacific, was also an important unit in the Korean war. VR-23 operated this "Carrier-on-Board" delivery service from NAS ATSUGI. The *Codfishers* carried plane parts, combat photography, official mail, and supplies.

In the Atlantic, VR-22 flew its *Turkeys* on many important missions, particularly during important training exercises. They were on transport duty in *Operation Mainbrace*. Aboard the *Antietam*, the *Turkeys* of *Codfish Atlantic* were among the first aircraft to land on an angled deck.

Naval operations in our time are world-wide in scope. They have presented challenging problems in logistics and still do, for each naval operation involves a new situation.

In the air age, aircraft carriers and every form of air support are an important dimension of national strength. While major supply support comes from the surface Fleet, air support is essential. In an emergency, critical material can be flown where it is needed, and time is bought with the speed of big transports.

Fleet Admiral Nimitz once said: "Ships and naval tools of war may change greatly with the passage of time but the Navy's primary function—Control of the Sea—will not change. The Navy shares with its sister armed services the responsibility for establishing, as accurately as possible, the needs which must be filled for the successful projection of the nation's military power overseas, but it is the particular and lone responsibility of Navy to assure safe delivery overseas of manpower and all the sinews of war."



END OF THE LONG LOGISTIC LINE IS DEMONSTRATED AS TASK FORCE 70.2 IS REPLENISHED SOMEWHERE IN THE SOUTH CHINA SEA

COLLEGE GRADS CAN FLY AS OFFICERS

COLLEGE graduates may now take their flight training in the Navy as commissioned officers under a new plan just approved by the Navy Department. The new program, called Aviation Officer Candidate Program, introduces several other innovations.

Formerly, a college graduate could, after acceptance as an officer candidate, attend Officer Candidate School and after commissioning, apply for flight training leading to the designation of Naval Aviator. Introduction of the new plan marks the first time in recent years that civilians can apply for flight training, go directly to Pensacola and receive all flight instruction as a commissioned officer.

The new system calls for successful applicants to be enrolled at Pensacola in the Pre-flight school. The pre-flight phase for these candidates will last 16 weeks and combine officer candidate training, aviation ground school and physical-military training. The AOC's will be commissioned at the end of the four month Pre-flight period as Ensigns in the Naval Reserve and will take the entire flight phase of their training, (approximately 14 additional months) with the full pay and allowances of a commissioned officer.

The age requirements are 19 through 25 years; however, the restriction on being married, for students in the AOC category, has been waived. An additional provision requires that each candidate must have had at least one and one half hours of time in aircraft under instruction for familiarization before final acceptance. This flight time can be logged in either civilian or military aircraft, but must be in two flights.

Under existing directives promotion to Lieutenant Junior Grade should occur for the Ensigns after about four months of Fleet duty. The officers will also have the opportunity to apply for transfer to regular Navy during their Fleet duty under existing policy.

Application for the Aviation Officer Candidate program is made through the Office of Naval Officer Procurement. Each ONOP has had a naval aviator assigned for the express purpose of processing candidates for the program. ONOP's are located in Albany, N. Y., Albuquerque, N. M., Boston, Mass., Buffalo, N. Y., Butte, Mont.,

Chicago, Ill., Cincinnati, O., Dallas, Texas., Denver, Colo., Detroit, Mich., Houston, Tex., Kansas City, Mo., Los Angeles, Calif., Macon, Ga., Minneapolis, Minn., Nashville, Tenn., New Orleans, La., New York City; Omaha, Neb., Philadelphia, Pa., Pittsburgh, Pa., Raleigh, N. C., Salt Lake City, Utah, San Francisco, Calif., Seattle, Wash., St. Louis, Mo., and Washington, D. C.

If an accepted candidate should fail in some phase of the flight training program after finishing pre-flight, he will be re-designated as a 1355 (Aviation Ground Officer), and be permitted to remain on active duty in such assigned duties for three years. If failure occurs during pre-flight training, the failing candidate will serve for two years in an enlisted status.

Jet Ride is Student Prize Cuban Midshipman Earns Honor

"Me gusto muchisimo!" or freely translated, "It was terrific!" were the first words of Cuban Midshipman Antonio E. Bascaro upon his return to NAAS SAUFLEY FIELD following his first ride in a jet plane.

The Cuban aviator won the ride when he was awarded Saufley's top weekly honors. He was chosen "Student



BASCARO (L) ENJOYED FIRST JET FLIGHT

of the Week" early in April and thus became the third foreign student to win the award at Saufley in a little over two years.

Bascaro's 3.31 flying average was far ahead of his nearest competitor's 3.15. The winning grade is based on an average of his flying grade, his grade on his demonstration of leadership qualities and his grade in Ground School. It was the last grade that gave him the most trouble because of the language barrier. "Compared with Ground School," says Bascaro, "flying is a cinch."

In the picture above, Bascaro runs over a check-out list with his instructor, Lt. Harry Lewis and Lt. R. E. Ferguson, pilot of the TV-2 trainer in which Bascaro took his first jet ride.



THE NEW Lockheed T2V-1 (foreground), jet trainer designed to operate with aircraft carriers, is paced by a TV-2 two-place jet land-based trainer. The T2V-1 introduces numerous safety and performance features, one of which is a boundary layer control system. Air is ducted into the wing and squirted through tiny holes directed at the flaps and ailerons. This causes the normal airflow to hug the control surfaces giving improved performance and increased lift.



GRAMPAW PETTIBONE

Patent Pattern

An F9F-5 pilot completed his third run on a bombing target and started a pull-up. He advanced the throttle full forward, but found he was getting only 75% power. Sensing something wrong, he called his section leader and asked for advice. The section leader suggested he switch to emergency fuel system, but the pilot was reluctant to do this as he thought there was a possibility of a flame-out.

Converting his speed into altitude, he set a course for the nearest base and arrived over the field with 5,000 feet of altitude and 75% power. He lowered his landing gear and opened his speed brakes, as he arrived at the 180° position of the landing runway at 4,000 feet, speed 175 knots and power still at 75%. Here he decided to lower full flaps. With power available and excessive altitude, he also decided to extend his downwind leg. On the cross leg he had 2,000 feet of altitude and 155 knots airspeed. Turning final, the engine flamed out.

The pilot immediately switched to emergency fuel system, raised gear and flaps and landed—in the woods short of the runway. The aircraft was completely demolished, but the pilot managed to escape with a few lacerations.

His summation of the accident was, "There are several things that I probably could have done to prevent this accident, such as taking the advice of my section leader by switching to the emergency fuel control system at the time he suggested. But the most important thing that I have derived from this accident is that I had been taught



flame-out approaches simulating full flame-outs, but not partial flame-outs. Had I known that the engine was going to flame out, I would not have extended my downwind leg so far causing me to land short of the runway.

"This accident is peculiar in the fact that there was partial power failure which was stabilized to the extent that I made this pattern with this power setting, but when the power failed altogether, the pattern was not so set up as to put me over the end of the runway."



Grampaw Pettibone Says:

Great Jumpin' Jehosaphat! With such a line of reasoning this lad is a candidate for another accident looking for a place to happen! He reminds me of the fella who ran off the end of a 10,000 foot runway on his first jet landing. His prize statement was, "If I had known my brakes weren't going to work, I'd have slowed it down another 30 knots and landed closer to the end of the runway."

It's beyond me how a pilot can bring a plane 30 miles on partial power and expect it to hold up while he executes anything but a flame-out approach. Lady Luck can be mighty forgiving when it comes to one or two mistakes. But she gets all bent out of shape when you try to stretch her too far. This lad not only did not attempt a flame-out approach, he also failed

to get his plane into a landing configuration at the start, so he could establish a standard rate of glide. Any power remaining in the final would have been gravy in case of an undershoot.

After committing himself to a power-on approach, he found he wasn't going to make it so he pulled up his gear and flaps. It's no wonder the plane dropped out from under him. Pulling up the flaps at slow speed is like pulling the stopper out of a bathtub. What doesn't go down isn't worth mentioning. Well, in spite of his mistakes, he managed to get out of the crash with minor injuries, for which we are mighty thankful.

The reason for the loss of power in the first place was the failure of one of the high pressure fuel pumps resulting in contamination of the "Primary" portion of the fuel control system. If he had taken the advice of his section leader, he'd have switched to emergency fuel system and bypassed the primary system, thereby regaining full power. One week prior to the accident the pilot had attended the latest of a series of lectures on the subject. It's my guess he'll be an expert on the emergency fuel system come the next lecture.

The Trap

A pilot of an AD-6 returned to the field from a routine tactics flight and broke for a landing. His approach was normal until he turned on final at which time the aircraft was observed to be in a slow, left wing down attitude. The aircraft appeared to stall a few feet above the runway and strike the deck on the port wing tip. The force of this contact was great enough to knock 11 inches off the tip of the port wing.

The aircraft then swerved about 30 to 40 degrees to port at which time the pilot applied full throttle. The aircraft climbed to an altitude of approximately 40 feet, rolled over, and crashed inverted into the ground on the side of the runway. The pilot was fatally injured, and the aircraft completely demolished by fire and explosion.





Grampaw Pettibone Says:

The Board assessed this accident as pilot error in that he failed to maintain a safe airspeed and attitude during his landing approach. Further, that he decided to take a wave-off after striking the deck with his port wing. Well, I must admit the Board is correct as to the cause of the accident. But let's look at it from an abstract viewpoint.

At the moment of the initial stall, the pilot was faced with an unexpected situation which called for reflex action. One moment he was flying along and the next moment the aircraft was completely out of control. By the time he realized what had happened, the port wing was on the runway.

The first thing that entered his mind was to get out of this situation and save the plane. Right rudder, right brake, and right aileron were ineffective. What was left? The throttle, of course! Power will straighten the airplane out! Before the pilot had time to weigh the consequences, his left hand pushed the throttle up to the stop. He had fallen into a trap.

There are a lot of horses under the cowl of an AD and the quickest way to stampede them is to lay the whip on hard. The airplane didn't straighten out, it jumped back into the air on sheer power. The airspeed was already below stalling speed, the plane was moving to the left, and the power had carried the nose above the horizon. The jaws of the trap closed and there was no way out. To chop the throttle would mean another stall and probably a fatal crash. The only choice was to leave the power on and hope. But conventional airplanes just aren't built to fly 40 feet in the air, below stalling speed, even with full power. A torque-roll is inevitable.

Four days prior to this accident the pilot had attended a lecture on stall-spin, torque characteristics, and recovery technique of the AD-6 aircraft, given by a factory test pilot. I'll bet my bottom dollar he didn't associate any part of the lecture with the predicament he found himself in. It's my guess he was trying to recover from a potential ground loop to the left.

Naturally, the accident could have been prevented had he maintained a safe airspeed and attitude during the approach. By the same token pilots wouldn't fly into the side of mountains if they flew over them. Fatal accidents during landings are not going to be prevented by correctly analyzing the cause and then telling all pilots that they shouldn't get low and slow in the groove.

The fact must be drilled into them that if they stall out too high and start a ground loop to the left, power will only AGGRAVATE the situation. Judicious use of throttle can prevent a ground-loop to the right as torque is then working FOR the pilot, not against him. The trap is set the moment a pilot decides that power is the only thing that will save his airplane, when it starts a left groundloop. The trap is sprung when the throttle hand is allowed to put the throttle on, especially with a high powered engine sitting in his

lap. Even if he doesn't become airborne, he is not slowing the airplane down by adding power.

It's all right to say, "Don't stall out too high on a landing," and hope that all pilots will heed the warning. But that is not enough. Let's add, "And if you do stall too high and she drops off on the left wing, keep your meat hooks OFF that throttle!"

We can patch up airplanes and groan at the expense, but we can't replace the loss experienced by the families the pilots left behind.

Too Close for Comfort

A pilot of a P2V asked for clearance to taxi out to the duty runway for take-off. The tower instructed him to proceed South on the runway he was on, turn right on the Northeast-Southwest runway, and right again on the taxi strip leading to Runway 11R. Being unfamiliar with the field, the pilot made the first turn correctly, but overshot the next turn and continued on down the Northeast-Southwest runway. The co-pilot was preoccupied in performing taxi checks, such as cycling the flaps, checking fuel system, etc.

Just as the plane commenced crossing the duty runway the co-pilot happened to glance out his side of the cockpit. Bearing down on them was a jet, which had just landed on the duty runway. The co-pilot just had time to blurt out, "Look out, here comes a jet!" and the jet passed from view behind the tail of the P2V.

This was the jet pilots' story:

"Touchdown was made 900 feet down the runway, and shortly thereafter I saw a P2V taxiing South approaching Runway 11R. I started an easy application of my brakes and continued to watch the P2V. I was rolling about 100 knots when it appeared to

me that the other plane wasn't going to stop. I applied brakes up to the skidding point and, as he broke out in front of me, I applied left brake harder to steer behind him. With full left brake on my aircraft veered enough to miss his tail by about four feet.

"My left tire blew, but I was able to keep control and rolled on down Runway 11R. The P2V had taxied up to Runway 11R and appeared to me to remain at a constant speed, never slowed down, never accelerated. Luckily, the aircraft wasn't slowed down once it started across the runway. If it had been, they'd be picking up the pieces with a spoon."



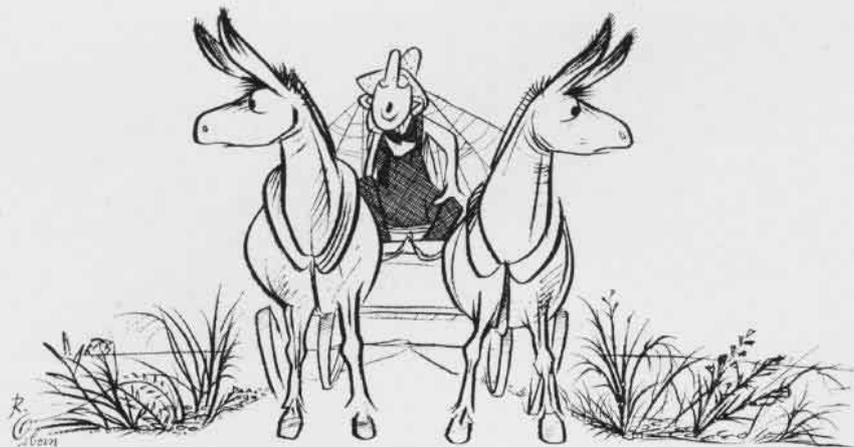
Grampaw Pettibone Says:

It beats me the things some people get away with! This is one case where head up and locked and eye-balls caged averted an accident. Although not the recommended procedure, I guess if you can blunder out of a situation as easy as you can blunder into it, it must have some merit.

It is understandable that a pilot may be confused as to the taxiway he is on. But there is absolutely no excuse for crossing an intersection of two runways without tower clearance or, if he has that, without a visual check on both sides.

This reminds me of the farmer who was galloping a team of mules down a country road. When they reached an intersection, the mules stopped. About the time the driver reached for the whip to take some of the obstinacy out of the mules, a car went whizzing by in a cloud of dust. The farmer set the whip down, wiped his brow and said, "Girls, if it wasn't for them big ears of yours, we'd all be in the glue factory."

One of the mules winked at the other and whispered, "Ya know, a guy like that oughta be driving one a them infernal flying machines. They ain't no intersections up there."



Almost FORGOTTEN EVENTS



LEXINGTON'S SPEED RUN

OLD HANDS who may have been aboard the USS *Lexington* (CV-2) during June 1928 will recall the super speed run of this first line carrier. Not many others will recall the details.

The big carrier cleared the breakwater at San Pedro at 1156 on 9 June. At noon, she conducted flight operations, while steaming at a standard speed of better than 31 knots. Seventy-two hours and 36 minutes later, on 12 June, she anchored in 75 feet of water at Lahaina Roads, in the Hawaiian Islands. Her average speed for the run was slightly over 31 knots.

What a remarkable record the *Lexington* made in 1928 is indicated by a comparison with the current speed record established in 1952 by the SS *United States*

on her maiden voyage. She made an eastern crossing of the Atlantic Ocean from New York to Southampton in 82 hours and 40 minutes. Her speed was a constant 35.59 knots, or slightly over four knots faster than that of the *Lexington* 24 years before.

During the three-day run of the *Lexington*, she steamed 2,226 miles and just once during the crossing was the speed reduced. On 10 June, during the early morning watch, speed was reduced to 18.5 knots for four minutes to shift ventilation motors.

Utilizing 15 of her 16 boilers, the *Lexington* consumed 803,712 gallons of fuel oil as she sped across the Pacific. Her turbines were turning at a speed of 278 rpm's and her boilers burned over 11,000 gallons of fuel per hour.



TWO SAAB-29C aircraft flown by two Royal Swedish Air Force pilots, Capt. Hans Neij and pilot Birger Eriksson established on March 23 the international speed record for the 1,000 kilometer closed-circuit distance. The two pilots flew 621 miles in one hour, six minutes, and 37 seconds at an average speed of 560 mph. The previous record was held by a British Gloster Meteor fighter.

VP Squadron Scores First Completes 'Round the World Flight

On a routine deployment, VP-1, returning to home base at NAS WHIDBEY ISLAND from six months Formosa patrol duty, became the first such squadron to fly around the world. The 12 P2V *Neptunes* departed Okinawa in four sections in April, at 24-hour intervals, with scheduled stops at Sangley Point, Singapore, Ceylon, Arabia, Naples, Port Lyautey, Azores, NAS QUONSET POINT, and NAS HUTCHINSON.

At NAS HUTCHINSON, the sections regrouped for a scheduled arrival at NAS WHIDBEY ISLAND on 5 May.

During the Formosa deployment, the planes of VP-1, commanded by Cdr. I. A. Kittel, averaged 1,300 hours per month and covered a total of approximately 1,200,000 accident-free miles.

AFROTC Visits with VP-9 Navy Methods Observed by Cadets

A novel visitation program has been instigated by the CO of VP-9, Cdr. H. M. Murphey and LCol. J. K. Hardy, OinC San Francisco State College Air Force ROTC unit.

As part of their military training at the college, small groups of ROTC



NEPTUNE'S 'EYES' ARE SHOWN ROTC MEN

cadets are making one-day visits to VP-9 at NAS ALAMEDA. During these visits, the cadets are given an orientation lecture and tour designed to give them some of the fundamentals of aviation.

The visits are highlighted by a flight in a Navy P2V-5 *Neptune*. While airborne, the cadets observe the combat aircrewmembers at work and inspect flight controls, radar, turrets, and other gadgets which are part of the *Neptune's* equipment.

These visits give the cadets a bird's-eye view of a sister service with which they will be working in the future.

Adm. Combs Aviation Head Replaces Adm. Ofstie as DCNO(Air)

A change in command in the top echelon of naval aviation took place in April when VAdm. Thomas S. Combs assumed the duties and responsibilities of Deputy Chief of Naval Operations (Air).

VAdm. Combs came to the Pentagon from his post as Commander of the



DR. VICTORY CONGRATULATES ADM. COMBS

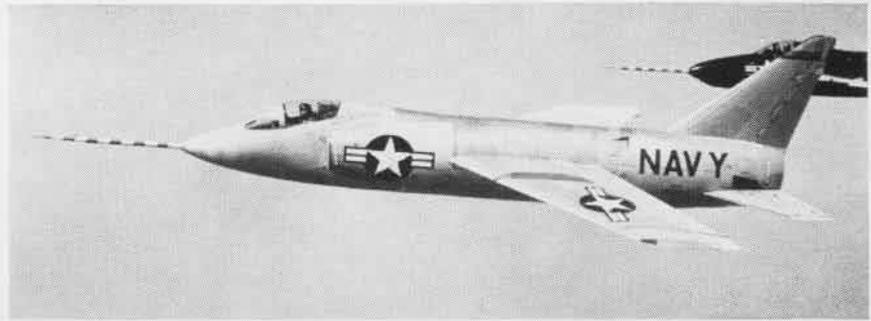
U. S. Sixth Fleet in the Mediterranean, after having been relieved in that position by VAdm. R. A. Ofstie, former DCNO(Air). Until the arrival of Adm. Combs, his duties were handled by RAdm. W. L. Rees, Assistant Chief of Naval Operations (Air). Adm. Rees continues this post.

One of the early official acts taken by Adm. Combs in his new assignment was to be sworn in as a member of the National Advisory Committee for Aeronautics. Dr. John F. Victory, Executive Secretary of the Committee and an old friend of the Admiral, performed the ceremony on 11 April. The job as Committee member is not new to the new DCNO(Air). He served as a member in 1952-53 when he headed BuAER.

Gitmo Flight Saves Life USNH Portsmouth Responds to Call

In response to an urgent long distance call from NAS GUANTANAMO BAY, Cdr. Frank B. Clare, a neurosurgeon, boarded a transport plane at Portsmouth, and was flown to the side of Richard D. Bassuener. Bassuener had fallen from a roof in Guantanamo and sustained an injury which resulted in almost complete paralysis from the neck down.

A member of VF-33 based at NAS OCEANA, the 21-year-old sailor was on temporary duty in Cuba when the accident occurred. Immediate diagnosis at USNH GUANTANAMO revealed,



NAVY'S LATEST fighter in the Panther-Cougar line has a new designation and is to be known from now on as the F11F. Thus far the Tiger has been simply the F9F-9 which indicates its relationship to the "cat" family. However, the Tiger is so markedly in a class by itself that the Bureau of Aeronautics has changed its designation to indicate its definitely advanced status.

among other injuries, a fractured cervical spine, with bone fragments pressing on the spinal cord.

Within a few hours of his arrival, Dr. Clare had removed the bone fragments. The patient and his doctor were subsequently flown back to Norfolk. Just ten days after the accident, Dr. Clare reported that Bassuener had regained some movement in his leg and in time is expected to improve.

RAdm. O. B. Morrison, Jr., CO of USNH Portsmouth, stated that the flight reflects maximum utilization of medical personnel during a period of severe shortage in critical specialties.

'GCA Sense' Is Published Osborn Drawings Give Punch

Latest addition to the "Sense" pamphlets is *GCA Sense* (NAV AER 00-800-45) just published by the Aviation Training Branch, Office of the Chief of Naval Operations. Robert Osborn's drawings which have been used in all the Sense pamphlets add again his inimitable touch to the fast-paced description of what GCA can do for pilots.

The virtues of Ground Control Approach, the advantages of using it and relying on it, and the techniques involved are clearly described and wonderfully illustrated. Like all pamphlets in the series, this one is attractive in format and should prove popular.

Regular distribution has been made, but if additional copies are wanted, requests should be directed to Naval Aeronautical Publications Facility, Naval Aviation Supply Depot, 700 Robbins Avenue, Philadelphia 11, Pa.

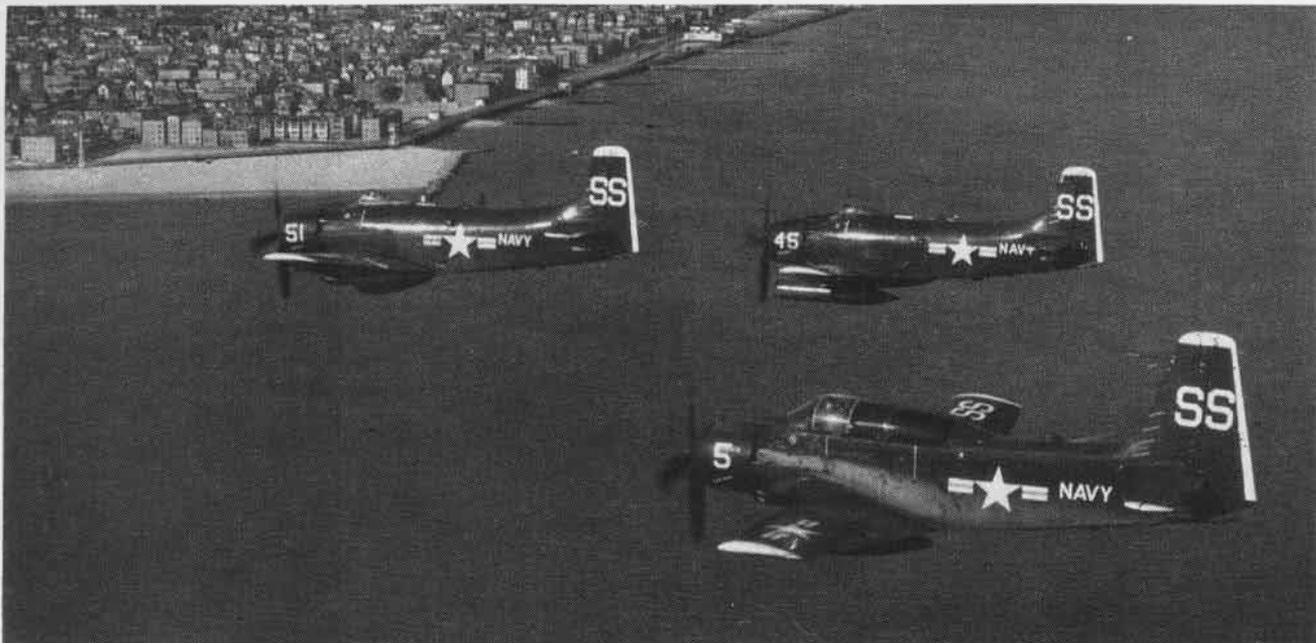
IFR-IQ?

In the U.S., on an IFR flight plan on airways, what is your allowable average variation in filed true air-speed?

Answer on page 32.



THE NAVY'S latest submarine-hunting equipment is displayed on the Grumman S2F Sentinel in the first photo ever released by the U. S. Navy. Note the radome and magnetic detection boom in the extended positions. The radar is used to detect and track surfaced submarines, while the MAD gear can detect and home on submerged subs. Of course, the operator is called "MADman."



THESE AD'S, the AD-3Q, AD-4N and the AD-5N, are typical of the aircraft flown by Fleet All-Weather Night Attack Squadron 33 in carrying out its missions. Home-based at NAS ATLANTIC CITY, the detachments range far and wide over both the Atlantic and Pacific Oceans.

AROUND THE WORLD AND AROUND THE CLOCK

WHEN THE night is black and the sky and the water meet; when the skipper can't see the bow from the bridge; when the seagulls decide to ride out the weather on a friendly yardarm or bobbing on the waves, the *Night Hawks* fly. This is a strange migratory bird. You'll find him roosting on the carriers of the Sixth Fleet in the Med and as well on other flat-tops half a world away in the waters of the Orient. Home nest is at Atlantic City—habitat, the seven seas.

The *Night Hawks* are the men who make up vc-33 designated as an all weather night attack squadron. Their designation hardly describes the many and varied tasks that are assigned them. But the *Hawks* are first and foremost a fighting outfit. Night bombing and close air support are their principal jobs. Add to those flying rescue patrol over downed planes and transportation of personnel on urgent and important missions from carrier to carrier or from carrier to the beach, and you have some idea of the variety of the work of vc-33. High priority express service is still another task. Frequently the *Night Hawk* is the man who is sent for the horse-shoe nail to save the battle.

Cdr. A. B. Sweet, commanding officer of the *Hawks*, former skipper of va-25 and of the carriers USS *Kitkun Bay* and the *Siboney*, sees very little of very many of his officers and men. Approximately one-third of the squadron is deployed all of the time. Assisted by Cdr. E. G. Fairfax, his executive officer, Cdr. Sweet manages one of the largest and most far-flung squadrons in the Fleet. Personnel allowance of the outfit is 70 pilots, 15

ground officers, and 550 enlisted men.

No hot-rod jet outfit—vc-33. When they go boring holes in the overcast, it is in their trusty AD-5 *Skyraiders*. Nor are they jealous of the jet jockeys with whom they associate on the carriers; they are content with their prop-jobs. Mostly this contentment stems from a faith and a pride in their *Skyraiders*. They are proud of the tremendous capacity of the AD to carry a huge pay-load over long distances through all kinds of weather; and proud of their own ability to deliver that load with deadly accuracy from a variety of altitudes. Proud of their versatility—no job too big, none too small. Some of their tasks may be unglamorous, but none is unimportant.

Like all night birds, the *Hawks* have developed an additional faculty—they see in the dark. The extra pair of eyes added to the three pair manning each plane is the radar. Without it vc-33 would be crippled so far as its night and all weather capabilities are concerned. Each pilot has a radar operator in the rear seat who operates his extra set of eyes.

But he who hunts at night is also hunted. Other eyes may be seeking him



THE OSPREY in flight signifies the squadron's steady determination to attack.



SQUADRON CO, Cdr. A. B. Sweet, delivered first AD-5N to VC-33 at Atlantic City.

even as he stalks his prey. Therefore each plane carries a second aircrewman who mans the counter-measures gear. These three make up an invincible team—pilot, radarman and counter-measures operator. To them weather is never an obstacle, night is their normal environment, teamwork their strength.

As in most Navy squadrons in peacetime, by far the greater portion of the time of VC-33 members is devoted to training. But training for this squadron is somewhat more intense and extensive than for most.

Aviators reporting to the unit come from many types of squadrons and have varied backgrounds and experience. They must be trained in the fundamentals of VC squadron operations, familiar with the weapons that they will be expected to use efficiently, and be expert in carrier landings.

Much time is devoted to instrument flying and night flying. Perfection in each is the minimum. Weapons training includes dive bombing, both day

and night, rocketry, antisubmarine warfare, mine laying and night illumination. Radar interpretation, ResCap operations and night and day carrier operations in reduced visibility round out the syllabus.

THROUGHOUT the formative period one extra factor must constantly be taken into consideration and the training must be tailored to fit the situation. Each pilot, each ground officer and each enlisted man must be a fit member not only of the squadron team, but he must also be an apt member of a smaller team that will be deployed as a unit in the carriers of the Fleet. These are men destined to serve independently far from the headquarters of their squadron. Judgment, self-reliance and reliability are the hallmarks of these crews.

These night attack pilots are recognized wherever they serve as men with special capabilities. Air crewmen, radar and countermeasures operators are not only expected to be expert in electronics analysis but technicians as well. On detached duty they must be able to maintain and repair the electronic equipments which are their tools of operations. Flight planning for the long hops through the darkness and the weather is a team operation with the pilot and his crew equally briefed, thinking alike and all bent on the same end result of each flight—a completely successful mission.

But in this team there are other members. Men who do not have the



THE NIGHT Hawks experimented with the F3D Skyknight as a replacement for AD.

opportunity to wear the Navy wings, nor the memories of flights both exciting and monotonous; nor the exhilaration of having met hazards and overcome them. Their share in the glamour of the squadron is vicarious but well deserved. They are the men who spend, by far, the greatest percentage of their time in dungarees on the deck making sure that the planes of the squadron are ready to fly. The mechs, the metal benders, the plane captains, the parachute riggers and dozens of others. Nor is the job of the yeoman, the storekeeper and the photographer as romantic as that of the men who fly. Theirs is the satisfaction that comes from knowing that the pilot and the crewman are no more efficient than the support that they get from the men who back them up on the ground and on the carrier deck. They are aviation's unsung heroes.

And back them up they do. For around the world and around the clock VC-33 pilots are ready and willing to go.



AIRCREWMAN F. G. Ezzell, AT1, typifies the importance of aircrewmen, who must be able to operate equipment as well as make repairs.



EACH MEMBER of VC-33 plays an important part in keeping the planes in the air. Here Belg, AD2, and Cosgrove, AD2, repair an engine.



GOVERNOR G. K. Knight was guest of honor of NAS Oakland and **Capt. F. B. Schaefer**, station CO, for the annual military inspection. Here, before a crowd of more than 3,000 visitors, Adm. Gallery and Gen. Lamson-Scribner inspected over 2,500 Weekend Warriors.

Re-enlistees, Take Note New CV Attracts Requests for Duty

Much interest has been shown throughout the Naval service in duty aboard the new USS *Forrestal*, CVA-59. Although it is a gigantic ship, it is certain that there is not room enough for the flood of applicants seeking crew assignments.

A ray of hope is shed to certain applicants by BUPERS INST. 1306.25A, which gives potential re-enlistees choice of duty privileges. In manning the *Forrestal*, priority consideration will be given to personnel re-enlisting for Atlantic Fleet duty with the *Forrestal* as first choice. Requirements of the ship preclude guarantee of duty aboard to all applicants, but such assignment is highly probable for men re-enlisting in the near future, providing their rates are included in the ship's allowance.

BuAer to Cancel Tech Orders

All existing technical orders setting forth the restrictions to be observed in the service operation of particular models of U. S. Naval aircraft will be cancelled about 1 July 1955, by means of the semi-annual Zero Technical Order. Henceforth, these restrictions will be found only in flight handbooks or supplemental handbooks for the particular model, and in required revisions thereto.

Scouts Visit NAS Key West Use Weekend Studying Navy Ways

Explorer Scouts from southern Florida visited NAS KEY WEST recently to spend a weekend with naval units stationed there.

While aboard the station, the 250 scouts were treated to various demonstrations put on by the Underwater Swimming School, FAWTU, HS-1, ZX-1, and VX-1. They also visited the submarine tender, USS *Bushnell*, and the submarine, USS *Medregal*.

The scouts used all the recreational



BOY SCOUTS STAND COLORS AT BOCA CHICA

facilities of the station, including the swimming pool, tennis court and ball fields. Sunday morning found the entire group attending church services.

An Injured Pilot is Rescued Marine 'Copter Pilots Save Man

A training exercise proved to be the real thing for two Marine helicopter pilots of MAW-2.

Second Lieutenants James E. Stygles and W. E. Anderson, members of Marine Helicopter Transport Squadron 261 stationed at NAS ROOSEVELT ROADS, Puerto Rico, were flying their helicopter on search and rescue duty in support of TraEx 3-55. Ironically, they were on their way to practice the operation of a rescue hoist that afternoon when they intercepted a radio distress call.

A Navy pilot had managed to crawl aboard a pararaft after abandoning in flight a disabled piston aircraft. As he bailed out, he accidentally struck the aircraft and incurred a serious ankle injury.

Marine Air Control Squadron Six radioed directions from NAS ROOSE-

VELT ROADS to the rescue helicopter to assist in locating the downed airman. The injured man's wingman provided further help by circling around the raft. As the helicopter hovered, the crew chief, SSgt. Donald Smith, used the hydraulically operated winch to hoist the man to safety.

Because of the severity of the injury, the helicopter rushed the aviator to the nearest medical facility on Vieques.

● Ground Control Approach Unit 24 of NAAS KINGSVILLE, Tex., recently celebrated its 50,000 approach with special ceremonies at the air station.

● Glass-covered camera ports of the F7U-3 *Cutlass* photographic plane are kept clean of dirt and dust by a number of small squirters, similar to those used on private cars.

Sub Rides Aid ASW Pilots FAW-14 Aviators Often 'Ship Out'

Taking advantage of every opportunity to improve airborne ASW tactics, aviators on the staff of ComFAirWing-14 regularly "ship out" on locally based subs as a means of obtaining first hand information on the capabilities and limitations of submarines.



SUB-HUNTERS ABOARD USS BLUEGILL, SS242

Invitations for such "check-out" rides were extended by San Diego based submarines. Aviators taking advantage of the offer take short cruises aboard the vessels of the Silent Service to gain valuable information for use in the training of ASW flight crews. They also keep abreast of the latest developments and tactics of the submarine.

ComFAirWing-14 is Capt Arthur S. Hill, and squadrons under his control are now employing the P5M *Marlin*.

NO WINGS, NO ROTOR, YET IT CAN FLY



THERE'S NO 'PLATFORM IN EVERY GARAGE' YET, BUT ONR MODEL MAKES FREE FLIGHT

A MECHANIC gave a quick jerk to the starter cable. One engine under the ring-shaped platform coughed into action, putt-putting like a popping jack, and throwing out blue exhaust smoke. Another jerk on another cable, and the second engine came to life.

Standing erect in the center of the metal railing atop the small round platform, Test Pilot Phil Johnston pulled down a bit on the gas lever under his hand. With an acceleration of the two engines' sharp bark, and an increase of the blue smoke, slowly the platform began to rise. No cable, no wings, no visible rotors lifted Johnston and his strange craft.

A few feet off the ground, with a decrease of power, the "flying doughnut" ceased its ascent and hung motionless in the air. The pilot leaned forward slightly. The machine tilted a bit also and moved forward. When the pilot straightened, the platform settled back to its horizontal position and again

hovered motionless. A shift of weight to the right and the machine slid in that direction. A bend toward the other foot, and the platform also moved that way, returning to "position one" each time the pilot stood erect.

Another notch or two less power, and the wingless ring settled slowly back to the earth, making a perfect four-point landing on its four short legs.

Called the "Flying Platform", this small, wingless, circular research device was built by Hiller Helicopters under the direction of the Office of Naval Research. Designed for one passenger, the "Platform" embodies the principle of flight so simple that it is almost instinctive—that of kinesthetic control. The pilot, in fact, uses the same instinctive reactions a person uses to stand and walk. Since he controls horizontal direction of flight merely by leaning in the direction he wishes to go, conventional controls and instruments are virtually eliminated, making flight ultra simple.

Lift and propulsion are obtained by the use of the principle of the ducted fan. The Flying Platform is the first aircraft employing the principle to attain free flight.

POWERED by the two engines, the ducted fans are located below the pilot. Rotating in opposite directions, and encased in shallow cylinders, these fans pull air down through the platform, thrusting it downward into a column, and the platform ascends on an invisible, but solid, jet of compressed air.

Although this free flight was a "first" for ducted fan powered aircraft, Hiller's "Flying Platform" was not the first such developed. In 1947, Hiller tested its forerunner, developed by Charles H. Zimmerman, however, no free flights were achieved. Five years later, in 1952, the National Advisory Committee for Aeronautics flew a tethered device of this model. Project engineers for this one were Charles Zimmerman and Paul Hill of NACA.

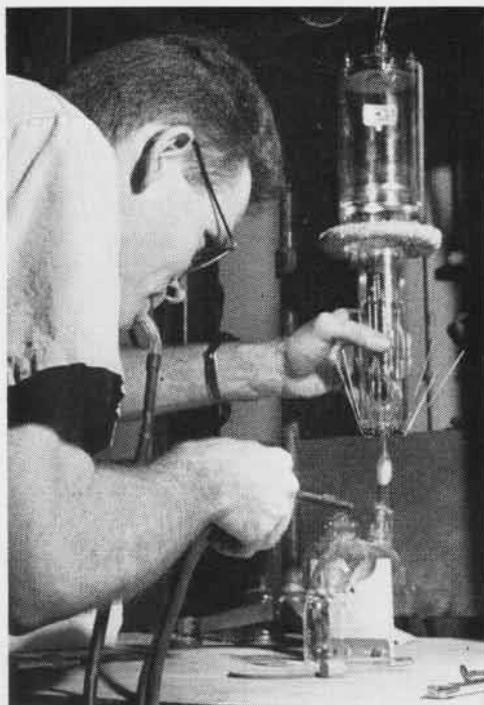
Among the advantages attributed to this strange, simple craft are the ease of learning to fly it, the simplicity of its flight, and the low cost of operation and maintenance. Very little ground space is required for the machine; it could be operated out of extremely confined areas. In addition, it could be carried fully assembled on the ground. Two men can easily lift it.

The future will tell if this simplicity and economy can be made use of to the fullest possibilities. If the platform proves to be actually as easy to control in continued flight as pilot Johnston is quoted as saying he thinks it is, a child could fly it. Extensive testing and development is necessary before production on a "for general use" scale can be accomplished. Till then, we shall all have to wait before we can fly our own.

With apologies, we apply one of Robert L. Stevenson's delightful poems to that eventuality:

"Up in the air and over the wall
Till I can see so wide,
Rivers and trees and cattle and all
Over the countryside.

"Till I look down on the garden green
Down on the roof so brown—
Up in the air I go flying again,
Up in the air and down."



SHIPS IN BOTTLES? OR TUBES IN BOTTLES? BOTH REQUIRE SKILL!

MANY ADVOCATES of the "do-it-yourself" school are found among the engineers of the Naval Research Laboratory's Electron Tube Section.

There's no general store or warehouse from which Research Lab scientists can draw all the various instruments needed in their never-ending search for knowledge, though commercially available apparatus is utilized whenever practicable.

Since much of the Laboratory equip-

ment is used purely for experimental purposes, drastic changes in models are the rule, and not the exception. Consequently, very few manufacturing companies are willing to undertake the job of producing items with these changing specifications on a one-time basis. Even if the companies were willing to attempt it, the cost of production would be prohibitive. And so the Lab must make much of its own equipment.

Using assembly line techniques, the

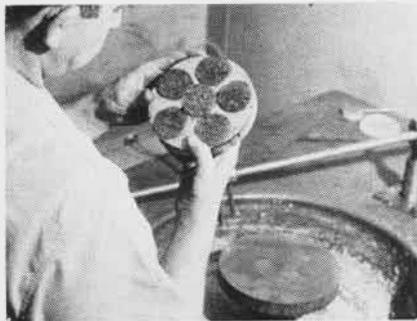
tube engineers produce many glass vacuums, some like enlarged versions of radio and TV electron tubes, others bearing little resemblance to anything previously developed. In two important ways, this engineering differs from commercial production on an assembly line basis: the items are not mass-produced, rather, many are one-of-a-kind, and secondly, the tubes must meet much more exacting manufacturing tolerances. In this work, tolerances of only



CUSTOM made, these glass envelopes are hand-tailored to fit the special type cathode-ray tube. They must pass many close inspections.



SCIENTIST spot-welds cathode-ray tube. This picture tube, flown on rockets, will gather data on vertical aspects of rockets in flight.



NRL-DESIGNED and constructed glass spacers separate grids in mass spectrometer tubes.

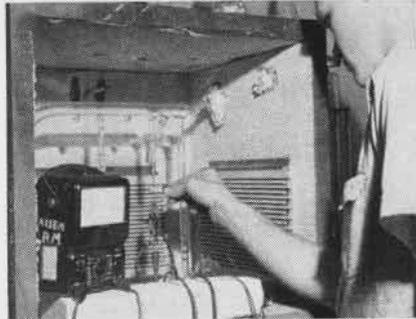
a ten-thousandth of an inch are commonly the maximum allowed.

A wide variety of skills is made use of in this operation, skills such as precision machining, hand assembly, glass-blowing, cutting, and polishing, vacuum and chemical processing. Every man on the production line must, by the very nature of the work, be a specialist. In addition to his actual contribution to the whole process, he is responsible for checking the absolute accuracy of this contribution. To accomplish this, he engages in many tests and inspections before the experimental tube moves on to the next stage.

One interesting product of this engineering section is the Radio-Frequency Mass Spectrometer tube. This device with the polysyllabic name is designed for use in the upper atmosphere research program and must be rugged enough to be flown in a rocket to altitudes in excess of 60 miles. Yet it must be sensitive enough to determine atmospheric composition at these heights with an accuracy demanded on the ground.



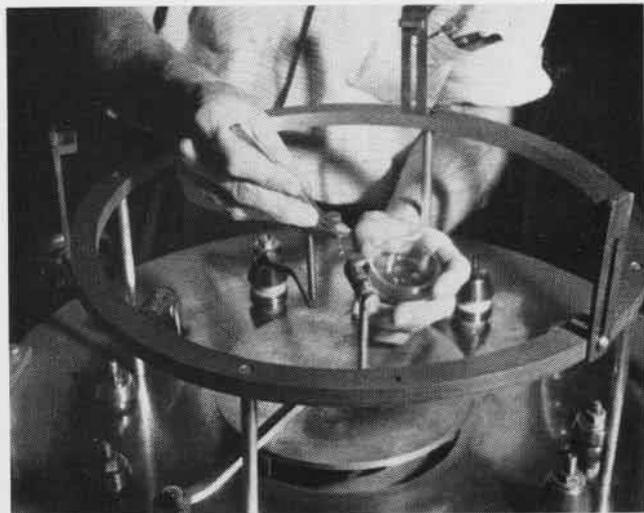
LAST inspection of electron tubes before use. Corked spectrometer is destined to fly high.



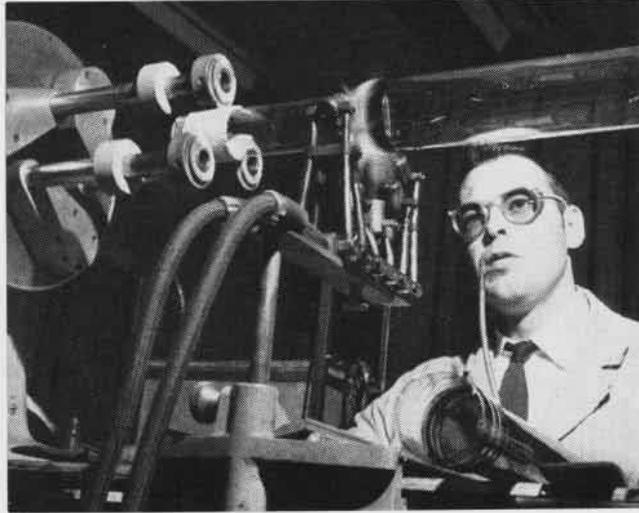
SMALL electron tube gets final check prior to its removal from a vacuum pumping system.



THEY CALL these tubes! Designed by the Naval Research Laboratory for its continuing study of outer space, these giant tubes seem as if they must themselves have come from outer space.

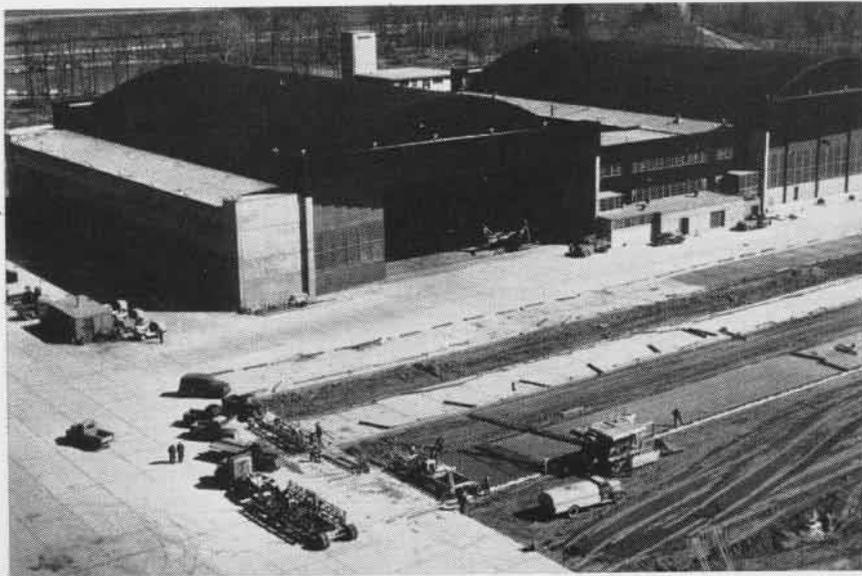


CHARGING a bell jar with metal shavings on electrical filament is one step in coating tubes with metal film a few millionths of an inch thick.



LAB TECHNICIAN blows the glass envelope that will house and protect the mass spectrometer tube as it probes mysteries of outer space.

BETTER LIVING THEME IN REBUILDING



PARAMOUNT PROJECT OF THE GIGANTIC STATION RECONSTRUCTION IS MIRAMAR HANGAR

HABITABILITY, a word more and more associated with the Navy way of living, is the theme of the current rebuilding program at NAS OCEANA. Recently a truck caravan completed the moving of all the Fleet units under AirLant from the old North Station to the ultra-modern South Station.

Fleet units of FASRON-5, VF-33, VF-83 and a FAWTULant Detachment are occupying the new type Miramar hangar and soon will move personnel into the latest in modern barracks now being contracted by the Navy Department.

The new hangar which covers 112,000 square feet, can accommodate 50 airplanes at one time for repair checks and general overhaul. Divided into three sections, it has two huge bays on either end of the building and a center bay for office spaces. Both the machine shops and electronic spaces are well furnished with essential, new machin-



CAFETERIA LINES SERVE THE ENLISTED MEN

ery, while offices are lined with acoustictile ceiling for noise reduction.

Living conditions in the new barracks are the answer to any sailor's dream. Eight units are connected by a walkway to the mess hall located in the center of the barracks units. Oceana's dorms have been divided into eight-man cubicles to assure a greater amount of privacy. Washrooms are completely tiled in harmonious pastel shades.

Two television lounges are good places to relax after a day's work, and the Navy Exchange is conveniently located in the barracks building.

The modern enlisted mess incorporates two serving lines to expedite serving. One line provides hot dishes while a second line, cafeteria style, offers an array of salads, desserts and beverages. Excellence of the food available, in variety, taste and quantity, remembered by many visitors to the former mess location, has been carried over to the new.

The new operations building is styled in modern vein. A lounge near the flight desk is furnished with wrought iron lamps and leather upholstered furniture. Fleet parachute riggers have available to them the facilities of a newly designed parachute loft equipped with the Navy's finest chute packing implements.

A housing project provides the married men with on-the-base quarters.

Apartment units with a choice of one, two or three bedrooms are available, and adequate playground space has been allotted to each unit. The remote location of NAS OCEANA necessitated a commissary, and one is in the planning stage.

In addition to the barracks now in use, Oceana expects other units to be completed within 18 months to accommodate the increasing number of Fleet personnel assigned to the jet base.

NROTC Students Airborne VC-3 Sparks Interest in Aviation

A program initiated by vc-3 at NAS MOFFETT FIELD to spur student applications for flight training has begun to pay off. Flying on Saturdays and Sundays, in addition to squadron training during the week, vc-3 pilots have flown over 100 NROTC Midshipmen in the past five months.

Cdr. W. F. Smith, squadron operations officer, conceived the plan, and NROTC Units at Stanford University and the University of California were invited to go on flights. The offer was enthusiastically accepted.

Each student is carefully briefed, given a cockpit checkout, and taken on a 45-minute flight around the San Francisco Bay area in a tv-2 tandem seat jet trainer. Advantages of flying as a career are pointed up to the prospective Naval officers, and the jet ride is given to create an interest in flying.

The success of this program is borne out by the number of applications for commissions and flight training.

A total of 32 men from the two schools have applied for flight training.



LTJG L. P. BORDEN CHECKS OUT STUDENTS

Planes Carry Iron Lungs VC-7 Takes Them to Mid-Ocean

One Monday evening the middle of April, two AJ's from VC-7 departed from NAS PATUXENT RIVER bound for the flight deck of the USS *Lake Champlain* somewhere in the Atlantic. Aboard the carrier, three men were suffering from poliomyelitis, and one was in desperate need of an iron lung.

ComAirLant had notified Cdr. T. T. Guillory, CO of the squadron, of the need for special equipment. At Patuxent River a portable iron lung was put aboard one of the planes. The AJ's then flew to Norfolk, took aboard a flight surgeon, picked up two more iron lungs and set off for the *Champlain*.

In 12 hours from the time the planes departed Pax River they landed aboard the ship with relief for the sick sailors.

CVA-14 Steam-Cats VIP General Jerome Rides AD Skyraider

The USS *Ticonderoga's* steam catapults launched two AD-5 *Skyraiders* recently loaded with gold. The first AD-5 carried MGen. Clinton C. Jerome, CG, AirFMFLant; the second, RAdm.



SKYRAIDER CARRIED JEROME TO THE BEACH

W. E. Moore, Commander, Training Command, LantFlt.

The two flag officers were aboard for an official visit for observation of carrier operations of VMA-331 and an inspection of the ship's Marine Detachment. This was General Jerome's first visit to the *Ticonderoga* which is now in the Caribbean.

Accompanied by Capt. W. A. Schoech, CO of the *Ticonderoga*, Adm. Moore and Gen. Jerome observed intercept control in CIC and an air defense exercise against a simulated air attack.

Gen. Jerome was enroute to U. S. after completion of a Caribbean *Traex*.

WELL GARBED FOR THE STRATOSPHERE



MODERN PRESSURIZED SUIT FOR MODERN JET

THE PILOT who climbs aboard his jet in 1955 doesn't spring into his cockpit with quite the grace and aplomb of a few years back. He's getting to look more like a space man, and feel more like an undersea diver. The Navy is not nearly so concerned with a flyer's glamor as it is with his safety, however, and safety at high altitudes is all tied up with atmospheric pressure.

Selden A. (Connie) Converse, Gruman Aircraft's Chief Pilot, is shown wearing the casual, coverall type of flying suit that was standard gear a few years ago for any fighter pilot. Contrast the space suit of the type being developed for the pilots of today's high altitude jets. Literally, the new style suits are "fearfully and wonderfully made," supplying the wearer with two things he has to have—oxygen and pressure.

Converse points out that, although most modern jet planes are equipped with perfectly pressurized cockpits to assure a pilot safety and comfort while everything goes well, there is always a remote possibility that some accident may cause a loss of pressurization. Many factors, including the size of the opening and the cockpit area, affect the rate and seriousness of decompression. At

extreme altitude, say 50 to 60,000 feet, in a pressurized cockpit, some form of pressurized suit is required to protect the pilot against pressure failure.

All pilots are aware of the necessity of keeping the partial pressure of oxygen in the body tissues up to the required minimum. Most Navy pilots have some idea of the effects of lack of



CONVERSE IN 1943 PREPARES FOR F4F HOP

oxygen from having taken a "hop" in a low pressure chamber. Converse explained that he had tested his own reactions when deprived of the normal amount of oxygen and found that, although he had a feeling of elation "as though I'd just gulped a quick double martini", he was unable to do simple arithmetical calculations readily, his eyes were affected, his judgment was unsure. As soon as oxygen was restored, he said everything snapped back to normal. In flying, a normal supply of oxygen is therefore obviously necessary to safeguard a pilot's mental processes.

So among things to come, you may list the possibility of a character dropping out of the sky some day—a man from Mars dangling from a parachute, alive because of his special coveralls.

WEAPONS-TRAINING VAMPIRE IN RAF

THE *Vampire Trainer* in which the Royal Air Force pilots get their wings is now being used widely for weapons training, according to the *de Havilland Gazette*. The new weapons-training aircraft has been designed to give the fighter pilot a proficiency in the weapons he will be using operationally.

There are seventeen national air forces using the *Vampire Trainer* as their standard advanced flying and weapons trainer. In addition to the Royal Air Force and the Royal Navy, the air forces of Australia, Burma, Ceylon, Chile, India, Iraq, Lebanon, New Zealand, Norway, Portugal, South Africa, Southern Rhodesia, Sweden, Switzerland and Venezuela employ it.

The high performance of jet engine fighters provides in-



TRAINER IS SHOWN WITH ITS SELECTION OF TACTICAL WEAPONS

creased striking power, but higher speeds have put an even greater emphasis on accuracy. This is not only because sighting time is reduced, but also because there may be no second opportunity for attack.

The fighter pilot of today must, therefore, possess a very high degree of proficiency in the use of a wide range of weapons. What de Havilland aimed to do in designing



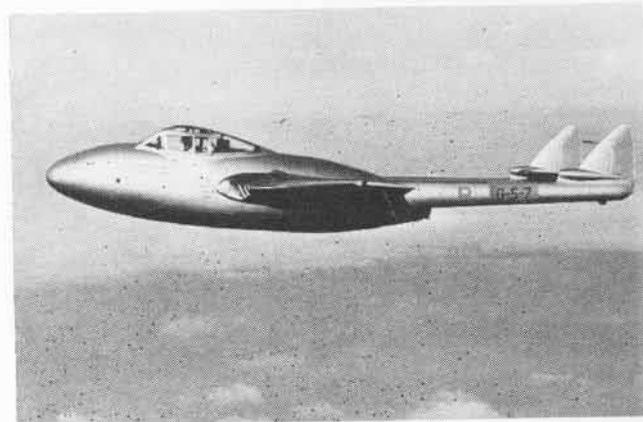
VAMPIRE TRAINER ATTACKS GLIDER TARGET TOWED BY A METEOR

the *Vampire Trainer* was to produce an airplane which closely matches the performance of the operational aircraft. One of the drawbacks of the trainers in WW II was that they were in lower power categories than operational aircraft. They did not simulate closely enough the performance that would be counted upon by the fighter pilot later.

The de Havilland trainer is faster than its single-seat predecessor. It is powered by an engine in an economical power category, the *Goblin* gas turbine. It is equipped with Martin-Baker ejector seats.

According to the manufacturer, the trainer has proved to be a steady platform at all speeds, has a high degree of maneuverability, and responds fast to small control movements. The target can quickly be brought into the sight and easily held there. According to de Havilland, fine adjustments can be made without risk of over-correction.

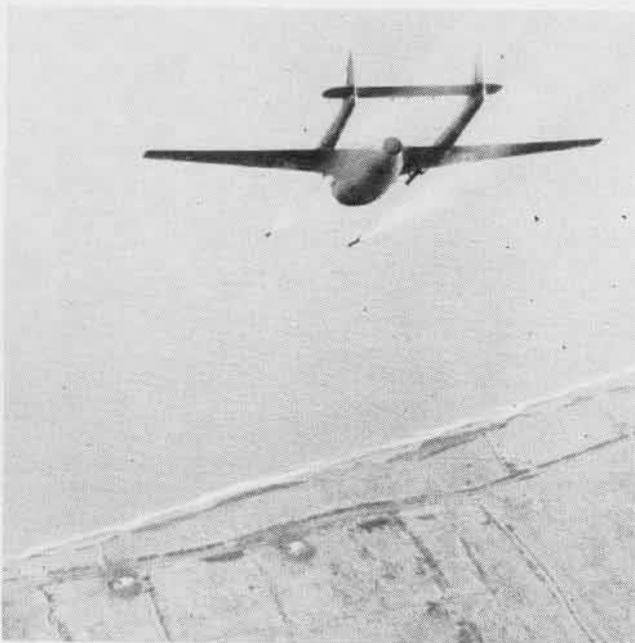
The *Vampire Trainer*, the T.11 as it is called by the Royal Air Force, has been designed to give the fighter pilot absolute command of the weapons at his disposal. The trainer carries many weapons in addition to the 20 mm guns.



SEVENTEEN NATIONS ARE NOW USING THE DE HAVILLAND TRAINER

The picture (p. 20, left) shows the aircraft armed with eight 60-lb. rocket projectiles and eight 25-lb. practice bombs. The 500-lb. bombs shown on the ground can be carried, with rockets, in place of the practice bombs. Alternatively, the aircraft has been designed to carry two 1,000-lb. bombs when required for operational service. The gun camera used during gun-firing and rocket and bombing attack is located behind the circular window on the nose.

Military aviation has come a long way since its early use by the RAF in 1916 when two-seat bombers were used to soften enemy resistance and disrupt communications during the Somme offensive. It was not until aircraft and aero-engine design had made possible a new generation of high-



USING A GYRO-GUNSIGHT, A TRAINER FIRES PRACTICE ROCKETS

performance, single-seat fighters at the beginning of WW II that the full potential of the ground attack, fighter-bomber began to be realized.

Today, using the trainer, the RAF student pilot gets his weapon training in an aircraft with which he is already familiar. The old tandem seating arrangement has been abandoned, and the instructor and pupil sit side by side. "The *Vampire Trainer* can claim," the manufacturer states, "to be the first training aircraft with operational qualities in which both student and instructor enjoy a view which is equal to that of the operational fighter."

AT THE Fighter Weapons School at Leconfield, England, the RAF pilot-attack course includes instruction in the use of all modern weapons. Leconfield, considered the headquarters of RAF weapons training, is using the *Vampire Trainers*. Reports indicate that instructors and students appreciate the visibility derived from the seating arrangement as well as the electrical interconnection of the twin gyro gunsights.

The gunsights, which are retractable when not in use, permit an uninterrupted forward view for approach, landing, and routine flying training. The master control is within

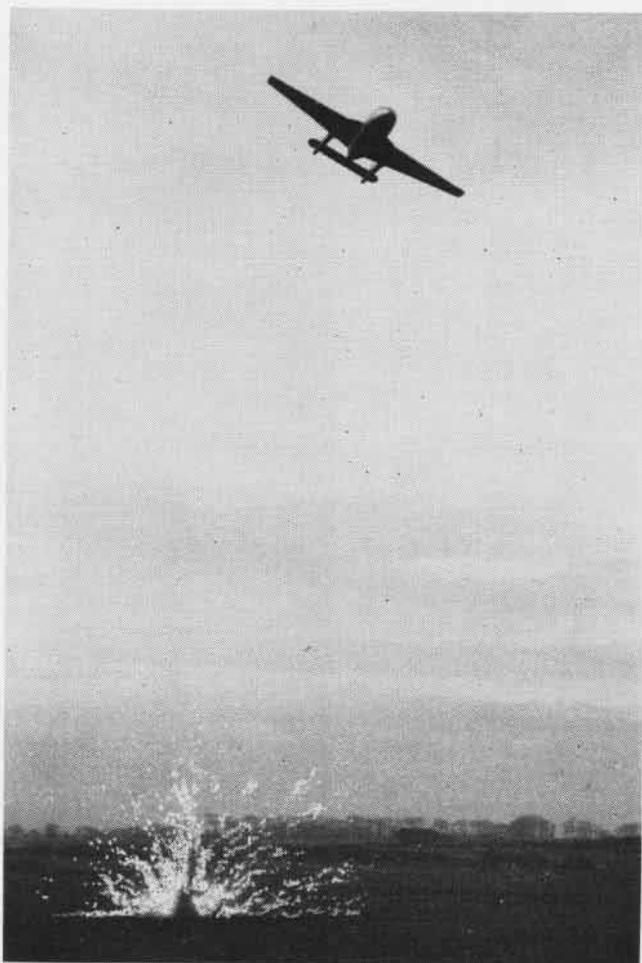
easy reach of both pilots. There are individual dimmer and selector switches with ranging controls on each throttle lever. Nose camera operation is synchronized with the gun triggers as well as bomb and rocket-firing switches.

Proficiency in weapons handling is not quickly attained. It usually is the outcome of careful instruction and constant practice. Even when a fighter pilot is skilled in weapons, he must continue to practice or jeopardize his proficiency.

In the Royal Air Force, every fighter squadron has a pilot Attack Instructor. He is an experienced pilot who is responsible to the CO for the standard of weapons handling, and it is his duty to supervise and aid the new arrival. He often uses the *Vampire Trainers* which are used by fighter squadrons for continuation training.

At Leconfield there are many instructors from allied and friendly powers who take training with their colleagues in the Royal Air Force. A Burmese officer who will instruct on *Vampire Trainers* recently delivered to his country, and an Indian pilot who is preparing for a similar task are among the pupils at Leconfield.

The international flavor at Leconfield is illustrated in the picture of the *Vampire Trainer* attacking a towed target. The *Meteor* was flown by an Englishman, the attacking trainer by a Dutchman, and another *Vampire Trainer* carrying a photographer was piloted by an American officer.



TRAINER CLIMBS AWAY AFTER DROPPING 25-LB. PRACTICE BOMB



A RELIEF MAP with land and water sharply delineated is basis for a problem which student officers are studying as part of special training, particularly in the field of air intelligence.



HERE Lt. Udovin and Lawrence Shepard, ADC, display a very difficult landing problem.

'MEN WITHOUT WINGS' AT SCHOOL

THE PHRASE, 'Men without Wings', describes the more than 1,000 graduates of the Aviation Ground Officers School at NATTC JACKSONVILLE, but it does not indicate the professional and technical backgrounds which these men must have to do the job.

There was a day when a pilot was his own mechanic and his own radio man, performing all services with his aircraft in flight or on the ground. Those pioneering days are past, for modern warfare requires its specialists. The aviation ground officer is now the backbone of the naval aeronautical or-

ganization in fulfilling its mission.

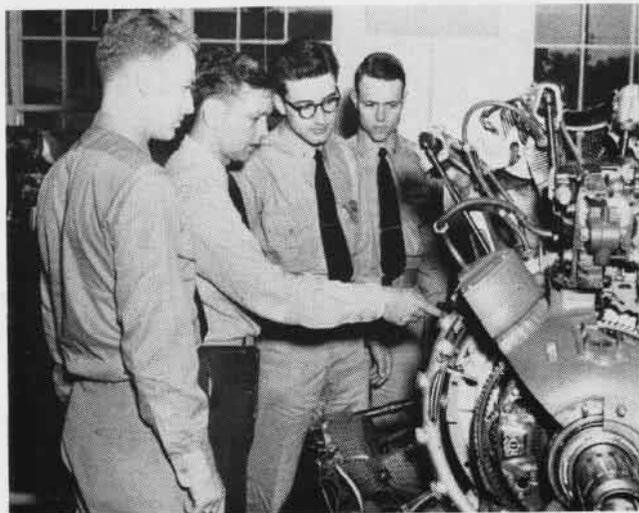
Techniques taught at the school include maintenance, engineering, electronics, combat intelligence center, air intelligence, photo interpretation, ordnance, ground control approach, guided missiles, and carrier installations. After further training at specialty schools, the graduates usually take over positions as division officers.

The AGO School was established in 1952 by CNO to meet the exigencies of the Korean crisis. The school has continued to supply trained specialists, and most of the officer students are Re-

servists. In the May class, 240 students will attend, the largest thus far.

Under Capt. Henry C. DeLong, CO of NATTC JACKSONVILLE, and Cdr. R. M. Barwell, Director of Training, the school is administered by LCdr. J. K. A. Bobbitt, Training Officer. With him are three instructor officers: Lieutenants J. C. Wilkins, B. A. C. Udovin and R. E. Chamberlain, Jr.

Value of the training program has been recognized by high ranking officers who have worked with aviation ground officers on ships and at advanced bases where their skills count.



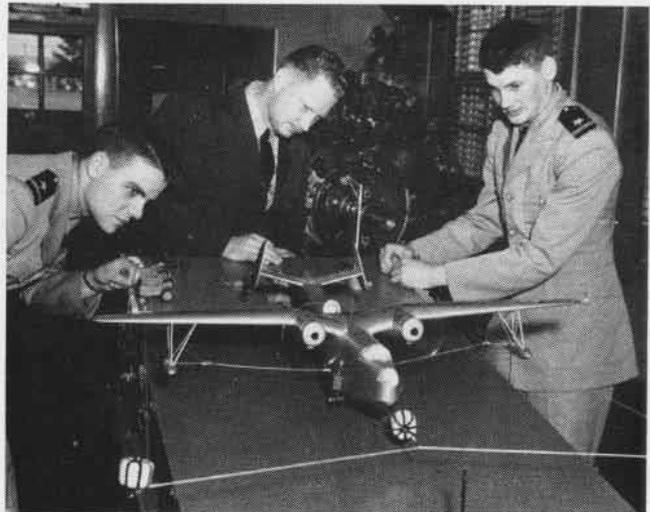
STUDENTS in the maintenance shop receive instructions as a cutaway airplane is used to make clear the complexities of modern power plant.



SEVENTEENTH AGO class boasted two lieutenant commanders from Brazil. Lt. James Wilkins instructs Jayme Costa, Jr. (1) and Sylvio Siquera.



A HIGHLIGHT of the program is a two-day cruise aboard a Navy carrier which gives the officer students a practical taste of life afloat.



CHIEF Thomas Comstock, a teacher in seaplane nomenclature, shows two ensigns a model of a patrol bomber launching ramp and its related gear.



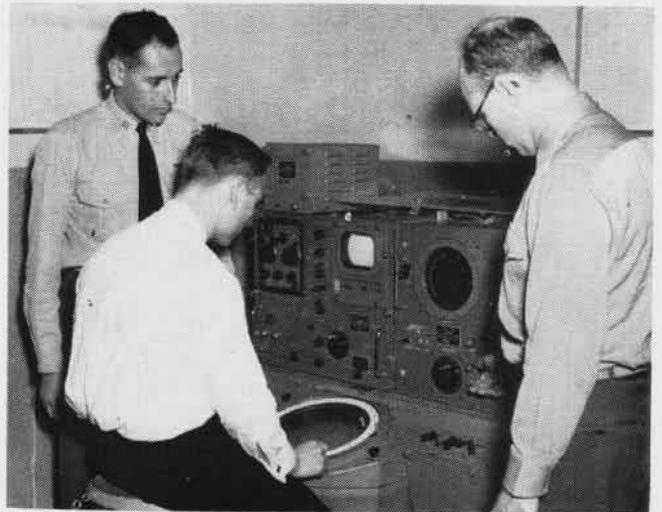
GUNNERY instruction is important part of course. Here Robert Garrison, chief aviation ordnanceman, displays a 2.25" rocket to an ensign.



MODEL of a carrier deck showing launching and arresting gear was built by Chief James Bell (r.) who shows use of gear to O. N. Edwards.



MODERN Naval tactics stress radio communications, so here officer students read mock-up panels in Combat Intelligence Center course.



A STUDENT ensign learns elements of search radar while Lt. R. E. Chamberlain (left) and Chief Carroll Bowning (right) instruct him.

Reserve Orders Expedited Delay in Assignments Now Reduced

In spite of expeditious processing of applications, a delay of approximately two months has been generally experienced in the assignment of Inactive Duty Officers to Ready Reserve billets. The provisions of BUPERS Notice 1300 will effectively reduce this delay.

In accordance with recommendations approved by SecNav, a policy has been established, implemented by the BUPERS Notice dated 6 April 1955, which makes Officers Inactive Duty Training Orders effective, for pay purposes, on the date of their endorsement by the unit commanding officer.

The date of such endorsement will normally be inserted by BUPERS in paragraph 4 of the NAVPERS 998 (Attachment to Naval Reserve Pay Unit), if the request is approved. Officers whose applications are pending are considered in a provisional drill pay status for reporting purposes. No pay, however, will be authorized until receipt of the approved form.

Commanding officers of aviation pay units will require verification of flight status from the Chief of Naval Personnel prior to endorsing officers' requests for naval aviator billets.

Cadet Nips T-28 Disaster Averts Trouble, Stays with Trainer

In the kind of nightmarish moment every flier dreads, Aviation Cadet David C. Maxfield, soloing in a T-28 trainer, watched helplessly as the propeller flew off his plane in a puff of black smoke.

Though only 2,000 feet above the city of Laredo, Maxfield was high enough to bail out safely—if he didn't waste a moment.

But what about the danger of the rapidly descending plane crashing into the densely populated area below? The 23-year-old cadet decided to stay with the crippled trainer and guide it to a crash landing in the countryside if he could.

Lowering the T-28's nose, he started the powerless descent. Flaps down and fingers crossed, he brought the plane to a wheels-up, jarring landing in a field, as open-mouthed farm workers watched in amazement.

Shaken but unhurt, Maxfield discovered he had missed the Rio Grande River by only a few hundred yards.

INSPECTION TOP TO BOTTOM



RADM. I. E. Hobbs, Chief of Staff, ComAir-Pac, carefully inspects Hornet OS Division.



THE ADMIRAL and Capt. F. A. Brandley (CO) listens as OinC explains machine shop work.



DOWN in the engine room, RAdm. Hobbs questions a chief of Hornet's "Black Gang."

MCAS Accident Prevention Cherry Point Initiates New Board

MGen. V. J. McCaul, CG of MAW-2, has organized an aviation safety board within his command to insure a strong program of accident prevention. The relatively low accident rate of the Wing continues downward, and the new board has been organized to insure still greater safety.

Col. M. A. Tyler and Majors W. J. Lytle, D. M. Hinshaw and H. R. Moore have been appointed to the board. The new organization is not a command function but operates in an advisory capacity to the General to determine accident causes and devise steps to eliminate them. Maj. Moore recently completed the course in aviation safety at the University of Southern California.

The board does not replace the investigations held by unit commanders. They are still held responsible for making accident reports and holding careful investigations.

To keep abreast of the latest findings in aviation safety, board members are sent to NATTC PENSACOLA, Naval Aviation Safety Activity, Norfolk, and USAF bases at various places.

Navy Mass for British CV Randolph Padre Meets Old Friend

Chaplain John A. Abucewicz aboard the USS *Randolph* has said mass aboard many a U. S. Navy ship, including battleships and submarines, but he had never celebrated mass aboard a British man-o-war. This opportunity presented itself recently in the Med, and Padre Abucewicz jumped at the chance.

HMS *Centaur* and *Albion* were bolstering the carrier power of the powerful Sixth Fleet, which then included the *Randolph* and *Lake Champlain*.

One Sunday afternoon a British helicopter alighted aboard the *Randolph*, picked up the Padre and his assistant, Robert Sekel, SN, and took them to the *Centaur*. Here they were met by the ship's chaplain and given a quick tour of the British carrier en route to St. Christopher's chapel.

Of the 110 Catholics aboard, 48 attended the services. Among those present, Father Abucewicz spotted an old acquaintance, Lt. Toomey of the RCAF. They had first met three years before at NAS WHITING FIELD, where Toomey was undergoing flight training.

Bout with Cancer Beaten Marine Colonel Returned to Duty

Combat-qualified LCol. D. T. Rohrabacher is one man who sings the praises of the American Cancer Society and the Navy's Medical Corps. Although given only a 50-50 chance to survive during the next year, Rohrabacher has assumed command of VMF-533 at MCAS CHERRY POINT.

During maneuvers in the Caribbean area last summer, while Rohrabacher was CO of VMF-114, the cancer was discovered. The Flight Surgeon of MAG-24 kept the knowledge to himself and sent Rohrabacher to Rodriguez Hospital in San Juan for a more extensive examination.

Rohrabacher was advised to report to the nearest Naval Hospital for immediate treatment. Upon arrival at the Camp Lejeune hospital, he was met by Dr. H. Hubbard who rushed him to surgery and had him under drugs within 15 minutes. Seven weeks of X-ray treatment followed the removal of cancerous growth before Rohrabacher was restored to full duty as a Group 1 pilot.

He feels that "the good Lord had his reasons for sparing me." He praises the wonderful work of the Navy surgeon and the research which made it possible to accomplish a miracle in medicine.



MEN READ PUBLISHED OCS SELECTION LIST

Men Headed for Newport Three VS-22 Applicants Accepted

Air Anti-Submarine Squadron 22 at NAS NORFOLK is proudly boasting what it believes to be a percentage record for the number of candidates from an individual unit who applied and were selected to attend the Navy's officer candidate school at Newport, R. I.

The sub-killer unit recommended three men, and all three were included in the list of 227 who were chosen from more than 1,800 applicants throughout the Navy.

With their commanding officer, Cdr. W. C. Moore, the happy candidates shown in the picture are from left to right: Hainyard L. Horne, Jr., Walter T. Miesse, and Frank N. Ansel.

Haiti Has Hurricane Stamp Honors Marine and Navy Pilots

The Republic of Haiti has issued a postage stamp to commemorate the relief operations by Navy and Marine helicopters which rendered assistance last fall to the Caribbean island devastated by Hurricane Hazel.

Marine Helicopter Transport Squadron 261 of MCAF NEW RIVER, N.C., was one of the three squadrons that participated in the operation, dubbed *Sante—French* for health. HU-2 of NAS LAKEHURST N.J., and HS-3 of NAF WEEKSVILLE, N.C., also assisted in bringing food, water and medical supplies to the stricken country. Haiti has not forgotten this assistance.

The blue-tinted postage stamp depicts a 'copter landing near a group of Haitian natives whose arms are outstretched for the relief supplies. A church and the ruins of a village provide the background for the new postal issue. Above the helicopter are the words "Cyclone 'Hazel'."

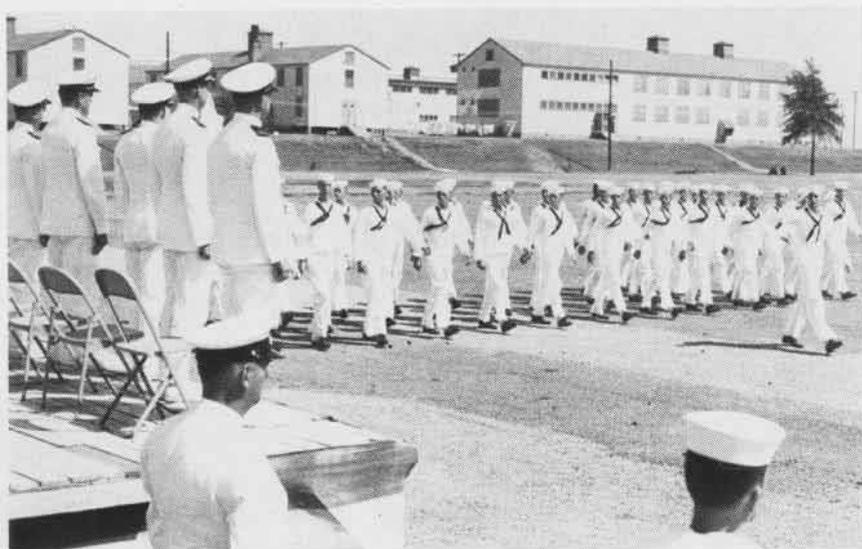
The stamp is roughly equivalent to our two-cent stamp and is approximately the size of an air-mail stamp. Second Lt. G.C. Phillips of HMR-262 first learned of the stamp while on a recent weekend visit to Port au Prince, Haiti, and presented several stamps to 261 upon his return to this country.



THESE TWO striking photographs of HMS Centaur (left) and the USS Antietam graphically demonstrate the big differences in the two nations' angled deck carriers. HMS Centaur's deck angles at $5\frac{1}{2}^\circ$ from

the centerline, while the Antietam's angles at $10\frac{1}{2}^\circ$. The Centaur just recently joined the powerful Sixth Fleet for maneuvers in the Med, and the Antietam has returned to her home port at Quonset Point.

Weekend Warrior NEWS



IT'S 'EYES Right' for these Memphis Naval Air Reservists as they pass in review. Graduation exercises mark the successful completion of eight weeks' tough training at this 'summer camp'.

SUMMER CAMP, NAVY STYLE

SUMMER time is camp time in America. When the days are long and the temperature climbs, young Americans leave home and gather together at summer camps for a few weeks of fellowship, of instruction in useful subjects, of programs of physical conditioning, and of training in good citizenship as the primary aim.

Not very different is the Navy's Summer Camp program. Officially designated Accelerated Rate Training Program, the "camps" afford to young Naval Air Reservists many of the benefits of civilian summer camps, plus many that are peculiar to the military services.

Authorized by BUPERS in 1949, and conducted by the Chief of Naval Air Reserve Training for all Naval Air Reserve activities, the program of accelerated training was originally designed to expedite the Organized Air Reserve's efforts in filling its petty officer ratings.

During the Korean emergency, the summer training program of reservists proved its worth. As the Reserve squad-

ron petty officers were ordered to active duty, they were replaced in large degree by graduates of the "summer camps." Since that time, with the Reserve petty officer structure still not up to strength, the accelerated training has been retained as an important part of the Naval Air Reserve training program—and a very popular part.

"Summer campers" may come from the ranks of Organized Reserve Squadrons, or they may be signed up directly from civilian life and, after qualifying, be given orders for 56 or 90 days of extended training duty, the course attended depending upon the amount of free time the young man has during his summer vacation.

In the 56-Day Recruit Training course, the Reservist receives eight weeks of concentrated recruit training. Classroom instruction covers Naval indoctrination, the Uniform Code of Military Justice, Naval Customs and Traditions, and personal hygiene. "Campers" also receive basic military training—marching, handling of side arms and

rifles, and taking turn at sentry duty.

Each man participates in the daily schedule of athletic events, which includes a wide variety of competitive sports, adding up to physical fitness.

In addition to the fine training these young Naval Air Reservists receive, to the complete uniforms, the food, lodging and medical care, they are paid approximately \$83.00 each month they are on active duty.

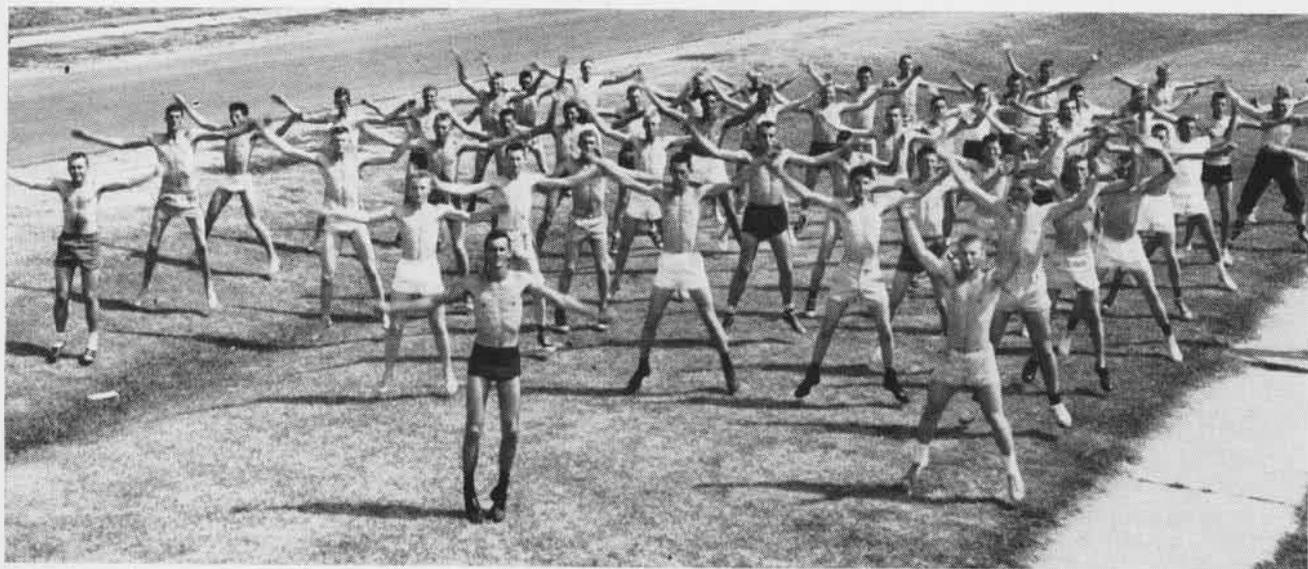
At the end of 56 days the recruit is graduated from the school, is enrolled in an organized reserve squadron, if not already a member, and is released from extended training duty to continue training on a week-end basis with his new unit. After he has attended eight drills (or two week-ends) he automatically receives his first advancement, and as an Airman Apprentice commences training for Airman. Thus a new recruit, by taking advantage of the accelerated Recruit training, makes his advancement to AA in four months, which is five months sooner than the nine months required if he obtains all his recruit training strictly by week-end drills.

Statistics show that of the young men originally signing up for the 56-day course, 80% switch over to the 90-day Recruit/Airman course at the end of the eight weeks. This 90-Day Recruit/Airman course is simply the recruit training with four weeks of concentrated airman training added.

Upon completion of this program, the reservist is promoted immediately to AA, prior to his release to inactive



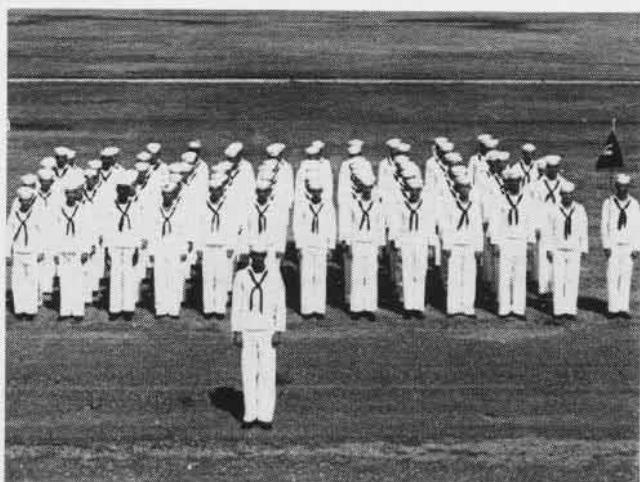
AS THE NEW recruits report for summer training, Small Stores does a land-office business.



IF THEIR performance is a little ragged at the beginning, these lads sharpen right up during the 20 minutes of body-building calisthenics that start off each jam-packed day at summer camp. Strong bodies and alert minds are prerequisite for Accelerated Training.



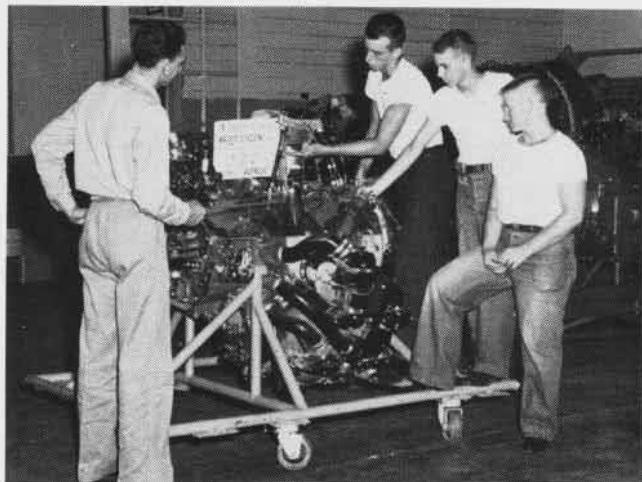
THE 'MANUAL of Arms' is only one part of basic military training for every recruit. Beginners find orders confusing, but they learn!



FOR SIX weeks this platoon has studied, marched and drilled. As the 'Outstanding Platoon of the week', they exhibit their winning form.



GETTING in their flight time, courtesy of Weekend Warriors! During off-duty hours the 'campers' spend all time possible in the air.



RECRUITS are given a study of various ratings in the Navy. Instructor, ADC, discusses parts of aircraft engines with potential mechs.



ON GRADUATION day, campers' parents and friends are invited aboard the station for an inspection tour, and dinner in the crews' mess.



THE EAGLE screams today for these recruits. Every man receives about \$83.00 each month that he participates in the summer camp training.

duty. After he has attended 24 drills (six week-ends), and completed one 14 day course, he is automatically advanced to Airman. The net result of this course is that a man can go from Seaman Recruit to Airman in a total of nine months, a saving of nine months under the 18 months of perfect drill attendance necessary to make AN on a week-end basis.

In the language of a young airman, it might be said, "You think this is good? Wait one. There's more yet!" There's yet another accelerated training course to send the aspiring candidate on his way up the ladder of advancement in rating. The 90-Day Basic Rate program, open to AN's (or AA's who have completed all the training requirements for AN except time in rate) offers accelerated rate (third class only) training. Graduation assures the reservist of a fully qualified third class petty officer rating. He has only to attend 12 drills after graduation, and the rate is officially effected. Training offered this summer is in the following rates: AC, AD, AE, AG, AK, AM, AO, AT, PH, RD, and YN/PN.

IF A HIGH school recruit signed up for Basic-Rate training the next summer after completing Recruit/Airman school, he would get 180 days of extended training duty and realize a greater acceleration than a man attending just one of the courses. In this case he could make third class in 18 months! To make the same rate by attending week-end drills would require 33 months, three 14-day cruises, and a

better than 75% drill attendance for the 33 months. Thus he would have realized an acceleration of 15 months. To paraphrase an oft-quoted comedian, "You can't hardly get opportunities like this anymore!"

Lest the actual work and learning at the schools seem to be glossed over, it must be emphasized that these are not snap courses. The actual subjects taught are those set forth in the "Manual of Qualifications for Advancement in Rate," NAVPERS 18068 (Rev.). CNARESTRA publishes the different rates' syllabi, which are actually abbreviated "Class 'A' School" curricula.

Quotas for each of the accelerated training programs are assigned annually to each of the 28 Air Reserve activities. And since the NAS's and NARTU's in themselves do not have sufficient personnel to conduct both week-end training (which must continue), and the accelerated training programs, Commanding Officers are authorized to issue "special active duty for training" orders to a certain number of officer and enlisted personnel to assist each activity in the conduct of the school.

All of the activities having messing and berthing facilities conduct their own Recruit/Airman schools. Activities having no such facilities send their men to other activities, assignment depending on the work load.

To preclude each activity having to conduct all the Basic Rate Training schools simultaneously, the Chief of Naval Air Reserve Training has grouped activities together by geographic location, usually five stations to

a group. One activity is assigned AD school, another AE school, etc. All stations order their candidates for a particular school to the NAS/NARTU conducting that particular school in their geographic location.

From the very modest beginning of 300 graduates in the trial year of 1949, those who have successfully completed courses in the Accelerated Training Program now total 15,609. That figure interpreted means that the Naval Air Reserve is just that much stronger, as it stands ready to augment the regular Naval forces in case of need.

New Field Service Program

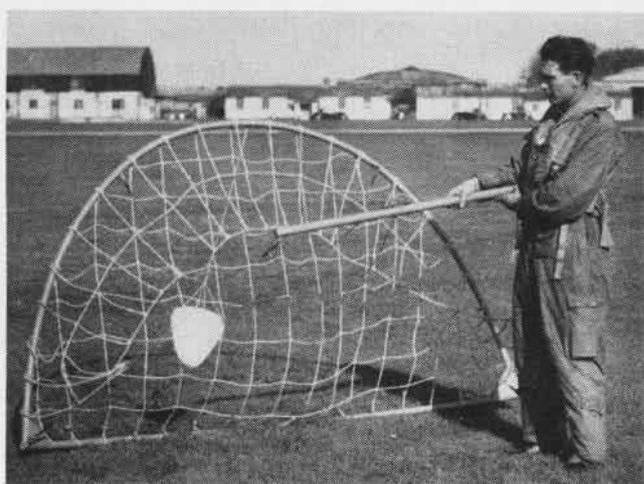
The Maintenance Division of the Bureau of Aeronautics has recently established a new on-the-spot field service to assist the Naval Air Reserve Training Command in maintaining aircraft in safe operating condition. The service is called the Aircraft Maintenance Field Service Program.

It was inaugurated as a result of a recommendation made last fall by CNARESTRA. He pointed out that the introduction of modern VP, VR, and high performance VF aircraft throughout the Reserve command posed maintenance problems not heretofore experienced.

CNARESTRA therefore urged greater liaison between the field activities and BUAEER to solve some of the maintenance problems naval air stations face.

Such a liaison plan has been put into operation and already BUAEER representatives have made three field trips.

BRITISH DESIGN HELICOPTER SURVIVAL NET

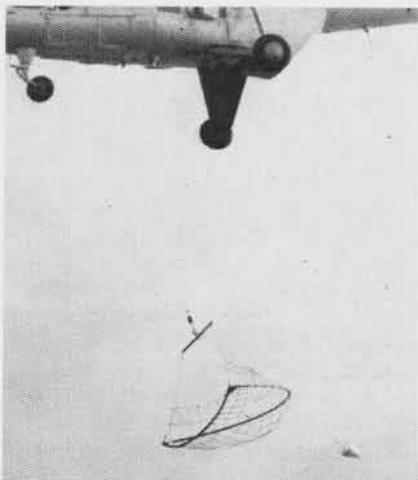


HELICOPTER DEMONSTRATES USE OF NET AS A SURVIVAL DEVICE

NET IS SIMPLY MADE WITH ALUMINUM FRAME AND SPREADER BAR

"Scoop the man up!" may be the air-sea rescue slogan if a helicopter net designed by the British Royal Navy comes into general use. The net appears to offer great advantages, particularly when rescue of an injured or nearly unconscious man is involved. Already the net has been used in waves up to four feet.

The net consists of an aluminum frame and four cables attached to a spreader bar; a small drogue chute stabilizes it. It was invented by LCdr. John Sproule, RN, and H03s and H04s helicopters have started to carry the nets. Right now a collapsible version, to facilitate storage in the helicopter, is undergoing tests. The U. S. Navy is interested in the possibility of using such a net.



DROGUE CHUTE STABILIZES RESCUE NET

The Royal Navy has described the operation in some detail. Before the take-off, the net is securely attached to the helicopter. When it comes time to use the net, the helicopter is slowed down to about 20 knots.

The helicopter pilot then circles the survivor or target in the water. The net is supposed to be about 20 feet below the aircraft. Gradually the speed is reduced with the aim of lowering the net into the water at not more than five knots ground speed and about 40 feet short of the target.

The pilot advances slowly on a line that will bring the man or target within the net. The aircrewman gives corrections on heading. The pilot is supposed to make rather coarse moves to left or right as soon as possible, bearing in mind that the net is some way behind him and is, therefore, not moving sideways as much as he might think.

The aircrewman's aim is to get the cross-bar to pass over the target or head of the survivor, at which time he plays out cable to get the net well underneath. At this crucial point in the proceedings, the aircraft should be about at a standstill. The aircrewman should report—"In the net."

With the aircraft stopped, the cable should be hauled in to plumb the net. As soon as it is out of the water, the aircraft begins to creep forward without climbing. When the net is alongside the cabin, it should be secured before the survivor or target is hauled into the cabin. Thereupon the aircraft climbs.

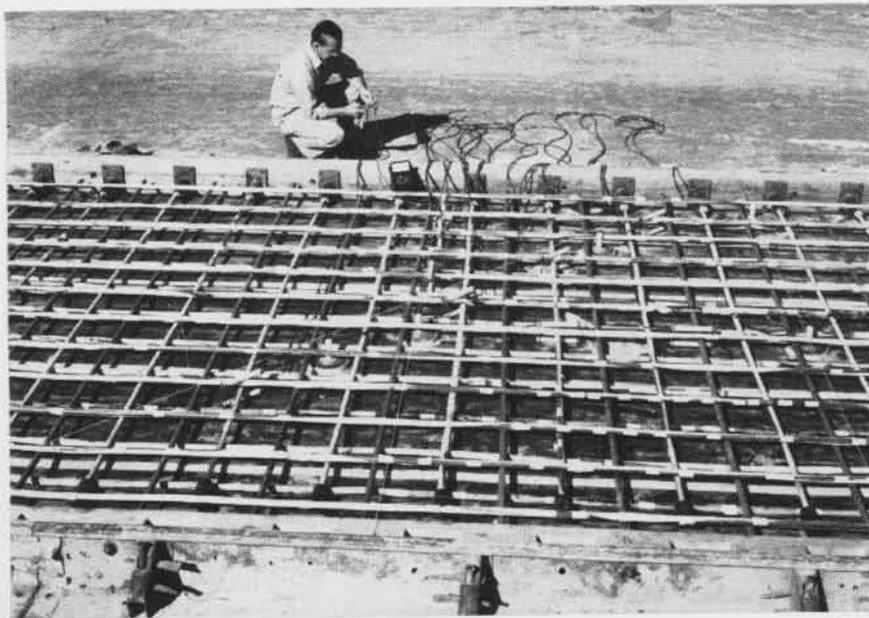
One of the special values of the net is that it is comparatively easy to practice its use over and over again. It has been pointed out that while the double pick-up routine is not too difficult if practiced regularly, it is a much more tedious exercise to use, and the result is that it is not practiced as it should be. The net method of rescue can be efficiently practiced under actual conditions with no more organization necessary than putting a five-gallon oil drum afloat. British experience indicates that about six lifts can be made in 30 minutes of flying time.

Each year sees new developments in the field of air-sea rescue. The idea of scooping a man up from the sea is novel and, it would appear, practical.



INVENTOR SPROULE SEES NET ATTACHED

PRE-STRESSED RUNWAY SLABS TESTED



Gauges will measure stress of test weights after concrete has been poured

IF TESTS NOW being conducted at the NATC PATUXENT RIVER, Md., on a revolutionary new concrete runway slab are successful, the familiar, rapid click-click-click of landing gear over runway sections may become a leisurely click—click instead.

Since the spring of 1954, the Patuxent River Public Works Department has been assisting in running stress tests on a "pre-stressed" concrete test slab, the primary purpose of which is to eliminate the cracks which often occur in unstressed runway slabs. It is built in 500 foot lengths in contrast to most runways now in use which have bumpy joints or separation points about every 20 feet.

This pre-stressed slab is 12 feet wide and seven inches thick. Twenty-three steel cables run its entire length through plastic conduits and paper wrappings. These loose conduits insure free and easy movement of the cables.

At the end of the slab are nuts on the threaded end of fittings on each cable. After the slabs are laid in place, these nuts are turned with a pneumatic wrench to apply tension to the cables, thus compressing the slab and eliminating cracks. This is the reason for the title "pre-stressed" concrete.

If cracks appear after the slab is in use, the nuts are turned and the slab compressed still more. This closes the

cracks, thus keeping runway smooth.

Cdr. J. S. Marsh, Public Works Officer, said that the pre-stressed slab project was begun after BuDOCKS realized that many of the runways at naval air stations were dangerously overloaded.

"The runways at Patuxent River are designed to take 35,000 pound wheel loads, but the *Super Constellations* of vw-2, which weigh up to 70,000 pounds per wheel, make regular landings here," Cdr. Marsh pointed out.

In addition to making smoother runways, pre-stressed slabs yield still other advantages. Since the new slabs are only seven inches thick, while some recently built airfields have 16-21-inch thick runways, much less cement, sand and gravel is needed to build them.

Furthermore, these slabs are much stronger than the plain concrete slabs because of their cable construction.

Many civilian contracting firms have been using pre-stressed concrete for years. However, this is the first known time that steps have been taken to apply this to airfield construction.

IT IS ASSUMED that the slabs will eventually be used to build runways; but a more immediate use may be in constructing warm-up ramps. As any ground-crewman knows, after a jet has been turning up for a while, the blistering heat of the exhaust gases begins to

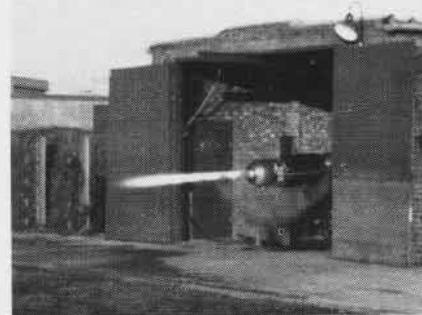
melt the joint filler between the slabs (if there is any left), and soon a molten liquid is squirting all over the ramp.

Besides the immediate physical danger involved, the unprotected joints then allow water to seep into the pavement base. This weakens the base and causes cracking.

If ramps are built with pre-stressed concrete slabs, though, the tar-filled contraction and expansion joints will be spaced every 500 feet. Thus the problem would practically be solved.

To date, the pre-stressed slab has successfully supported a 100-ton deadload weight during tests. Cdr. Marsh said that, before the project's completion, a heat test will also be run by turning up an F7U *Cutlass* jet aircraft with the exhaust bearing directly on the slab.

Rocket Engine Is Tested British Accept the Super Sprite



TESTS WERE CARRIED OUT AT MIDDLESEX

After two years of concentrated development, the de Havilland *Super Sprite* rocket engine has passed the type-approval tests and has been accepted by the British Ministry of Supply, according to an announcement by the de Havilland Engine Co.

Marking the completion of its experimental phase, the new liquid-propelled engine is the first to secure a government certificate. Quantity production and general service use are expected soon.

Fuel for the *Super Sprite* is hydrogen-peroxide augmented by a solid metal catalyst. Its thrust is further enhanced by the afterburning of kerosene or gasoline. It generates 120,000 lb./sec. of total impulse, with a maximum of 4,200 lb. thrust, and a duration of 40 seconds.

The new engine weighs 620 lbs. and will provide assistance in take-off for jet bombers and similar type aircraft.

LSO Designs New Lights Aids Field Carrier Landing Practice

A set of three portable center-deck, line-up lights for use during night field carrier landing practice has been designed and used by Lt. W. T. Mitchell, LSO of vs-36.

Mitchell designed the lights so that field practice would more closely simulate carrier lighting. The lights also assist the pilot in his line-up from the 45° position on to the ship.

Lt. Mitchell, who has been LSO for every night carrier landing vs-36 has made since January 1954, used the lights in January, 1955 when the squadron was getting ready to go aboard the USS *Kula Gulf*. They worked so well, he also used them on the ship in conjunction with the regular ship's deck lights.

The lights are easy to construct and very inexpensive. They are made of a piece of 3/16" steel plate approximately 12 inches in diameter. Upon this is welded a hollow tube which holds a common two-cell penlight and is strong enough to withstand the weight of one



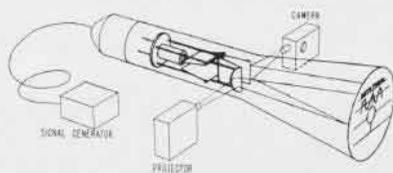
MITCHELL EXAMINES ONE OF HIS LIGHTS

of the squadron's big Grumman AF's, should a wheel run over the plate. The penlights' two batteries, which are easily replaced, last about an hour.

Mitchell places the lights 20 feet apart, forward on the runway landing platform, corresponding to the position of #1 forward elevator on carrier.

NRL Builds 'Optimascope' Several Military Uses Are Possible

A radar tracking scope upon which black-and-white or colored optical signals can be photographed is one possible application of an optical imaging oscil-



MIRROR SET-UP HAS MANY POTENTIALITIES

loscope, shortened to *Optimascope* by the Naval Research Laboratory.

The *Optimascope* uses a standard cathode-ray tube (a 5LP-1 was used in the NRL model) modified by having two small plane mirrors mounted on small angle brackets fastened to the horizontal deflection-plate structure of the tube, at a 45° angle to the center line of the electron gun assembly. Thus optical images can be projected through the neck of the tube and reflected onto the phosphor-coated inner surface of the tube face.

Several colored test slides were made and projected by a modified film-strip projector onto one of the two *Optimascope* mirrors. They gave reflected images which were extremely sharp, relatively undistorted, and in brilliant color. Although no effort was made to use two projectors and both mirrors at the same time, this could be done. Or a camera could be substituted for one of the projectors, allowing simultaneous photography of the scope face and projected image.

Although only two mirrors were inserted in the experimental model developed in NRL's Engineering Psychology Branch and constructed in the Electron Tube Model Shop, four or more mirrors

could be used, if an application required it.

Some of the possible military applications for the device, as seen by its developers, include:

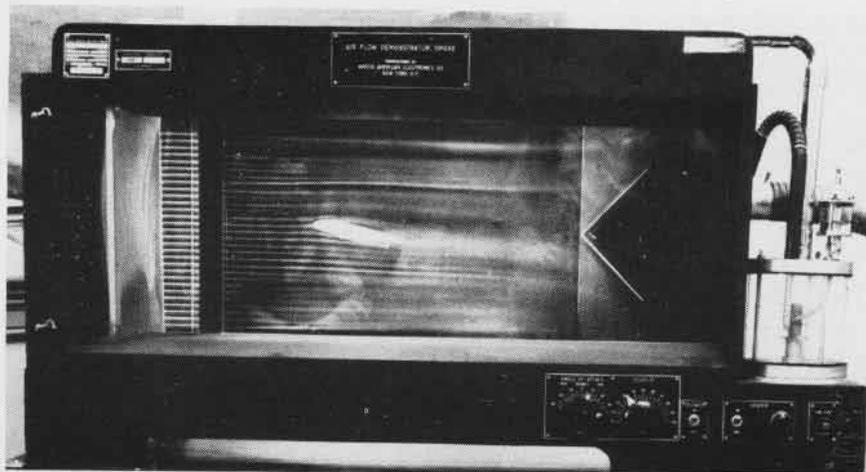
1. Use of optical cursors with radar or sonar information or the use of electronic cursors with optically projected information;
2. Superimposition of photographs of ordinary or radar maps on raw video for navigation;
3. Use of a periscope and the *Optimascope* to project an optical picture of the visual space ahead of an airplane onto the active scope face by this means a pilot could see ahead while he was tracking simultaneously through radar;
4. Projection of scope moving pictures on the *Optimascope* for training.

Marine Training Dates Set Reserves Go in July and August

"Weekend Warriors" from 30 Marine Reserve fighter squadrons and 12 air control squadrons will again undergo two-weeks training this summer at MCAS EL TORO and MCAS CHERRY POINT.

Unlike last year's training period, the Reserves will not make any large-scale cross-country flights. Last year eastern squadrons flew west for their training and western squadrons flew east.

Training at Cherry Point will be conducted 16-30 July while El Toro training will start 13 August and end 27 August, according to Marine Reserves.



THE LATEST additions to the training of neophyte pilots at the Navy's Pre-Flight School, Pensacola, are two theory of lift simulators that were designed and constructed by the Special Devices Center. The demonstrators utilize kerosene smoke that is drawn through a series of nozzles over the air foil of a scale model aircraft to demonstrate air flow over an airplane wing.

LETTERS



SIRS:

VC-3's supersonic check-out must include everything except instructions on how not to walk into a wing during the pre-flight inspection. What was the extent of damage to the man shown at the port wing tip of the F7U, page 1, April edition? P.S. Please don't show this to Gramp Pettibone or we'll all be wearing our hard hats during the "walk-around."

"SCAR-HEAD", LT.

‡ We're sure the man was just registering dismay at finding some dust on one of VC-3's immaculate planes.

SIRS:

With reference to your article concerning the "USS YV-2, Little Ship with a Big Mission," in the February issue of NANews, the enclosed picture illustrates that VU-10 has an even smaller ship with the same mission.

VU-10 received the KDC-77445, a converted AVR, in August of 1954. This small boat, 114 feet in overall length, . . . manned by a crew of nine and captained by Ltjg. T. Q. Winkler, is now providing the Fleet with small drone services.

R. T. PALMER, ENS.



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IFR-IQ?

According to Instrument Training Division, NAS Anacostia, the answer is plus or minus 10 mph. Ref: FIM Vol. 8, dated 25 May 1954, page 60.



ACTOR Anthony Auer, abroad with his celebrated father, Mischa Auer, when his turn came for military service, returned to the U. S. and joined the Marine Corps. He is with MAG-13.

SIRS:

We enjoyed reading your article on the Landing Approach Trainer (April, page 32). Our only disappointment is that when we had completed the article it wasn't completely clear that this was actually a modification of a Link Cycloramic Trainer, called the 1-CA-2, I believe, by the Navy.

LLOYD L. KELLY

Link Aviation, Inc.

SIRS:

The April issue of NANews is a corker, and we greatly admire many of the excellent photographs which you used.

WILLIAM P. BROTHERTON

Ryan Aeronautical Co.

SIRS:

Bet you now have umpteen notes from the Recognition boys on the AD-4 Sky-raidiers pictured on page 27 of the April NANews. They are good ole AD-5's here in VC-33, which we believe has more AD aircraft than anyone else, except Douglas Aircraft Co.

PAUL E. KOEBER, LCDR.

‡ The Recognition Boys say you are right, ole Eagle-Eye. Sorry for the error. We were misled by the official caption on the original picture, which we used as our source.

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● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a \$2 check or money order made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C.

● THE COVER

USS Philippine Sea prepares to be refueled by the USS Chemung, AO-30

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● Printing of this publication has been approved by the Director of the Bureau of the Budget, 12 April 1955.



SQUADRON INSIGNIA

APPROVED insignia featured this month range from squadrons to a wing. Leading off is the patrolman of VP-18 shown riding a rampant charge, and landing an enemy submarine with a bolt of lightning, which signifies the importance of electronics in ASW. The Latin title of HATWing-1, meaning "Strength Through Leadership" tops a descending bomb streaming a field of white hot flame. The atom, with its orbiting electrons, represents the source of force and firepower. A fist gripping a wrench and the flying horse signify maintenance, transport missions of FASRon-116 and HMR-161.



VP-18



HATWing-1



FASRon-116



HMR-161



CAMPUS TO COCKPIT FLY AS AN OFFICER



NAVAL AVIATION

NEWS

A new route to those coveted Navy Wings of Gold is now open to college graduates. The Aviation Officer Candidate Program provides for qualified young men to take their flight training as officers. You can be commissioned after taking only pre-flight training and go on to win your designation as a Naval Aviator wearing the gold stripe of an Ensign on your sleeve. No marital restrictions. For full particulars, read the details on page seven.