

NAVAL AVIATION

NEWS



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BATTLE OF MIDWAY, JUNE 3-6, 1942

'This memorable American victory was of cardinal importance, not only to the United States but to the whole Allied cause. The moral effect was tremendous and instantaneous From this moment all our thoughts turned with sober confidence to the offensive. No longer did we think in terms of where the enemy might strike the next blow, but where we could best strike at him to win back the vast territories that he had overrun in his headlong rush.'

—Winston Churchill in *The Hinge of Fate*

NAVAL AVIATION NEWS

FORTY-THIRD YEAR OF PUBLICATION JUNE 1962

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*Issuance of this publication was approved by
the Secretary of the Navy on 3 April 1961*

■ COVERS

First carrier test of the Terrier missile took place while the new attack carrier, USS Constellation, was undergoing shakedown . . . The inside cover shot, taken during the Battle of Midway, shows USS Yorktown (CV-5) under fire on June 4, 1942.

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NAVAL AVIATION NEWS

Unit Commendation Given SecNav Honors Deep Freeze Unit

The Navy Unit Commendation has been awarded by the Secretary of the Navy to officers and men who served in Air Development Squadron Six (VX-6) from November 1955 to April 1961.

Special ceremonies were conducted at NAS QUONSET POINT, home station for the Antarctic squadron. RAdm. David M. Tyree, USN, head of Operation *Deep Freeze*, presented the award to an officer, a CPO, a junior enlisted man, and a Marine, representing the ranks and rates comprising the squadron.

The citation, read by RAdm. Tyree, highlighted notable achievements of the squadron during the years covered

and praised VX-6 for "carrying out its responsibilities with outstanding skill and resourcefulness."

VX-6 provides the Navy's major air support for scientific studies conducted in the Antarctic by experts of the United States Antarctic Research Program under grants from the National Science Foundation.

Cherry Point to Get F4H Will be Assigned to 2nd MAW

The *Phantom* is coming to Cherry Point this summer. To the Marines this means one thing—that Cherry Point will be the first East Coast MCAS to get the F4H-1 *Phantom II*.

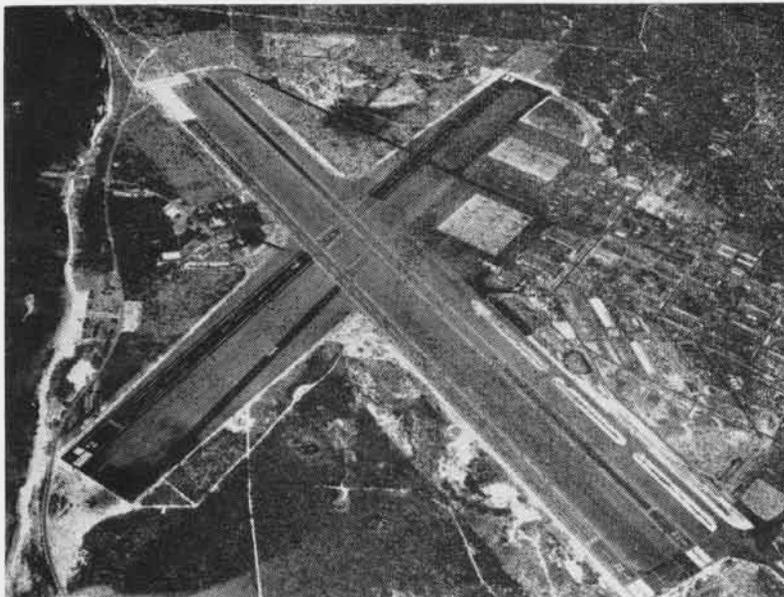
According to plans, the *Phantom* aircraft will be assigned to VMF (AW)-531 and will provide the 2nd

MAW with an all-weather intercept squadron that can either support ground troops or fly long-range strike missions.

The new squadron, composed of 71 enlisted Marines, nine pilots and nine radar operators, is undergoing a training program covering all phases of the F4H *Phantom* at Oceana, Va.

On arrival at Cherry Point, *Phantom II* will bring its already established fame as the fastest, highest-flying and longest range U. S. Navy fighter, with speed in excess of 1500 mph. In the past year, it has set several world time-to-climb records.

Carrying both *Sparrow III* and *Sidewinder* air-to-air missiles, the F4H *Phantom II* has the greatest firepower of any of the U.S. Navy fighters.



NAS BARBER'S POINT, commanded by Capt. F.N. Phillips, celebrated its 20th anniversary in April. Since it was commissioned in 1942, the Hawaii station has come a long way—from a station filled with troops waiting to be ferried overseas to WW II fighting fronts, to the present headquarters of the Airborne Early Warning Barrier Squadron,



four fleet staffs, three patrol squadrons, a utility squadron, service units, and a fleet tactical support squadron. Barber's Point is the home of a four-bat command: Commander Fleet Air Hawaii, Commander Barrier Force Pacific, Commander Naval Air Bases, 14ND, and Commander Fleet Air Detachment—RAdm. C.H. Duerfeldt, commanding.



FROM THE FOREDECK of the heavy cruiser USS *Northampton*, Commander-in-Chief John F. Kennedy viewed 48 of the U.S. Navy's powerful ships as they passed in review off North Carolina. Vessels, doublelined in nine-mile files, were led by aircraft carriers USS *Enterprise* and USS *Forrestal*. On various ships of the Navy were Vice President L.B. Johnson, Secretary of Defense Robert McNamara, 29 members of Congress, and representatives from 44 nations. Flown by

helicopter to the *Enterprise* upon completion of the fleet parade, the President observed exercises involving depth charges and flybys of F8U *Crusaders*, F4H *Phantoms*, A3J *Vigilantes*, and A4D *Skyhawks*. Ashore later, joined by the *Shah* of Iran, he watched attacks conducted by five battalions of airborne and seaborne Marines. "As we leave this base today," President Kennedy said at exercise's end, "We are prouder than ever that we are citizens of the United States."

NATO to Get Bullpup Missile to be Built in Europe

The Navy's *Bullpup* air-to-surface missile is to be built in Europe for the North Atlantic Treaty Organization under a coordinated production program.

The Martin Company, prime contractor for *Bullpup*, will supply technical assistance to NATO in setting up the production line. The Norwegian firm of Kongsberg Vapenfabrikk will be the prime contractor on *Bullpup* in Europe. Administration and technical support for this NATO production en-

deavor will be the responsibility of the U.S. Navy.

Bullpup is currently operational with the Navy on the A4D *Skyhawk* and FJ *Fury*. The Air Force version of the missile (GAM-83) is on duty with F-100 and F-105 squadrons.

Okinawa is Commissioned Second Keel-up LPH to be Built

USS *Okinawa* (LPH-3), the Navy's sixth amphibious assault ship, was commissioned April 14 at Philadelphia Naval Shipyard. VAdm. Charles D. Griffin, DCNO (Readiness), former

commander of the Seventh Fleet, was principal speaker at the ceremonies.

The 18,000-ton *Okinawa*, second ship of the *Iwo Jima* class, is designed to carry 2000 assault troops and 24 large amphibious transport helicopters. Her regular crew will be 50 officers and 475 men.

Prior to the August 1961 commissioning of *Iwo Jima*, first LPH to be built from keel up as an amphibious assault ship, all LPH's were converted from *Essex*-class carriers.

Capt. William E. Lemos assumed command of *Okinawa*, which will call Norfolk home port and home yard.



GRAMPAW PETTIBONE

Mighty Like a Rose

A veteran Marine Aviator with many hours under his belt took off one fine morning, intent on getting in a couple of hours of time in a T-28B.

After an hour in the local area, he entered the home field traffic pattern to shoot some touch-and-go's. He made six practice landings without incident, raising flaps on each rollout and then adding power each time to take off again. The seventh landing was to be a final one.

Gear and flaps were lowered at the 180 position, and he reported "down and locked" on base leg. Touchdown was light and easy on the main landing gear. Pilot eased on the stick forward to put the nose gear on the deck.

Suddenly, the warning horn blew and the red light flashed on in the gear handle! The prop struck the runway just as the pilot by reflex action hauled back on the stick and hit the gear handle down with his fist! The T-28 floated up about three feet and the nose wheel, which had partially collapsed, slammed back down and locked. The plane settled back to the runway on all three wheels and rolled to a stop as the pilot cut the engine. Total damage—three slightly bent prop blades and a cracked engine crankcase.



Grampaw Pettibone says:

Whe-eee! He can thank those thousands of hours of flight time for instant reflexes that were **JUST RIGHT** and smellin' you know how. Habit—in this case, raisin' the flaps on every rollout on a touch-and-go—just about did him in. He had started to raise the gear instead of the flaps. In his own words this could have been prevented by the old cadet days rule: "**THINK of it—LOOK at it—THEN actuate it!**"

Big Blast

An F8U-1P *Crusader*, its tail section removed and its big J-57 engine exposed for maintenance work, was being trimmed up at a remote high



power turn-up area on a WestPac base. The three-man check crew had encountered some difficulty in adjusting the emergency afterburner cut-off and worked until after dark.

The crew chief, who had been instructing one of his men in the method of adjustment, decided one more turn-up in burner would do it and told the mech to take a break for a few minutes. The crew chief then climbed up on the port side of the F8U, leaned into the cockpit and observed the third man as he pushed the throttle up to full power, then into emergency afterburner.

Meanwhile, the second man stood up from his crouching position under the engine, was momentarily disoriented and stumbling slightly, walked aft instead of to the side as he intended. Suddenly, as though some giant arm had snatched him, he was swept off his feet and propelled headlong through the air, striking the blast fence some 75 feet behind the aircraft! He fell to the ground and lay there helplessly, completely dazed and in great pain. He tried to stand up but couldn't. His leg would not support him, and the engine blast was still too strong for him to overcome it.

Crawling on his stomach, he slowly dragged himself back underneath the *Crusader* and upon reaching the nose

wheel found a flashlight and with it signalled the crew chief on the wing.

The crew chief yelled to the man in the cockpit to "cut" the engine, jumped down and quickly summoned medical assistance.



Grampaw Pettibone says:

Jumpin' Jehosaphat! A moment's lapse, just a little stumble, and this man almost had it! The jet blast of an F8U in burner is 475 knots at 600 degrees F. up to 50 feet in back of it. The danger area is twice as wide in burner as it is in basic engine alone. This man had a broken leg plus second and third degree burns of his hands, arms and legs. He'll be a long time healin'. He's had a tough lesson. Let's all profit by it. *Beware of jet blast!*

Flame-out

A division of F9F-8 *Cougars* came up the wind line to break over the duty runway. They had 350 knots indicated air speed and 1700 feet MSL and broke from the echelon at four-second intervals.

The number two man laid it right over, reduced throttle to 65-70%, actuated the speed brake and turned downwind. Just about then, he realized he was over-running the flight leader and the speed brake had not come down, so he retarded the throttle to idle, extended the landing gear and actuated the dive brake over-ride, all in an attempt to maintain his interval on the leader.

Suddenly to his consternation he realized the engine had flamed out! The throttle was in cut-off! He had accidentally brought it right around the horn! With 800 feet of altitude and at the 180° position for landing, he decided to try an airstart! First a normal airstart was tried but was unsuccessful. He followed up immediately with an emergency igniter re-light which was successful.

He had been holding optimum glide speed, but just as the engine came up to idle speed, the *Cougar* passed through a grove of lemon trees, shearing the tops off, struck a telephone

pole and passed over a railroad embankment still flying but just skimming the ground. The pilot landed it safely in the open desert, setting it down straight ahead with wheels down and flaps up. He secured the engine, cut all the switches and after unsuccessfully trying to open the canopy by normal and emergency means, finally broke away the canopy glass with his knife and climbed out, uninjured.



Grampaw Pettibone says:

Great balls of fire! Every jet pilot was supposed to have been told to GET OUT OF IT if he has a power failure under 1500 feet and not stay with a cripple tryin' relights! At power-off sink rates and holding glide speed, there just isn't enough time for a light and getting back up to full military thrust PLUS room to stop that blasted sink rate and climb out. Ninety-nine times out of a hundred you'll probably dig a hole with it. You can't plan on being a four-leaf-clover type like this man. A standard seat with zero lanyard should give you a fully blossomed chute 200-300 feet below ejection altitude. Tight but surer.

Success Story

Early one winter morning an FJ-4 was towing the banner at 30,000 feet for some 20-mm gunnery work over a West Coast desert range. Three FSU Crusaders were firing on the rag. Since it was the first firing hop at this altitude during their gunnery deployment, everyone was showing a tendency to get a little slow and "sucked" on the runs.

The tow pilot tried to watch the passes, but owing to the position of the sun, he was unable to watch them past the reversal.

Suddenly he felt a jolt run through the FJ, and as the engine fire warning light came on, the engine started to vibrate. He was hit!

He called, "Dropping the banner," reduced power to idle and started a turn toward the nearest air strip.

As he descended toward the airfield, 34 miles away by his TACAN, the fire warning light went out, although his tailhook light came on. She was gliding fine and under control.

Meanwhile, the FSU flight leader ordered the other two planes home and joined on the stricken tow plane to assess the damage.

The FJ didn't appear to be heavily damaged, but there were two holes

under the fuselage near the tail hook assembly which were streaming fluid and the speed brakes were cracked open a couple of inches. As the aircraft neared the airfield, the tail hook slowly extended and fuel started flowing from the underside of the fuselage. Asked if he could detect the loss of fuel in the quantity gauge, the FJ pilot said, "No."

From first tower call-up, all conversation on the radio was recorded and presents a good word picture of how these lads met the emergency.

0653. "Tower, this is Jackstay 47, advise I have a fire warning light over the range and I am presently on the 030 radial at 10 miles descending, requesting a precautionary flame-out approach into your pattern."

"Jackstay 47, tower, roger—call high key for runway 26, altimeter three zero zero zero, wind calm."

"Roger"

0655. "Jackstay 47, tower, what's your altitude?"

"This is 47, 8,000."

0656. [F8U] "I am right under you, Jackstay."

"Roger, I have you."

[F8U] "Is it customary for you to dump little fuel streams under your fuselage?"

"That's negative"

[F8U] "There's two little holes where it's coming out and your hook is hanging down. You could have a hydraulic failure here pretty quick."

"O.K."

0657. "Tower, Jackstay 47 making a modified straight in to runway 26, presently five miles off the end."

"Jackstay 47, roger, check one mile."

"Roger, my gear is coming down,

if I can get it down—and my flaps are coming down."

[F8U] "Your flaps are working" "Roger"

"Jackstay 47, tower—advise we have an arresting gear rigged 8500 feet down the runway."

"Roger, my hook is falling down, and it looks like I'll take it whether I want to or not."

0658. [F8U] "I'll tell you if anything doesn't look good and you be ready."

"O.K. I have a fire warning light again."

[F8U] "You say you have a light." "Right"

[F8U] "You be heads-up now, it looks O.K. However, keep heads-up . . . your speed brakes are cracked slightly."

"Roger"

0659. [F8U] "You had better watch out, you're smoking".

"Say again."

[F8U] "Go ahead and bail out of the bastard, bail out."

"Why?"

[F8U] "Get some altitude and bail out."

"I'll go ahead in. I have it wired now."

[F8U] "Boy, you're really smokin' now. Looks like you're gonna make it—now you're O.K.—good head."

[F8U] "Takes a lot of guts, I'll say that. . . ."

0700. [F8U] "Tower, you better give the flight surgeon a call and have him get some brandy out there."

"Roger"

[Jackstay 47] "No sweat."

As the flight leader later remarked, "You can't knock success."



Grampaw Pettibone says:

Giminentlies! This lad actually touched down on the overrun short of the runway, taking out some 50 feet of fence with his tail hook on the way in, but made it fine. A mile out a tremendous billowing cloud of blue smoke trailed his stricken FJ, and the FSU leader was giving him an honest opinion of his chances when he told him to eject. It's always harder to watch a man bore in than do it yourself, as the transcript shows.

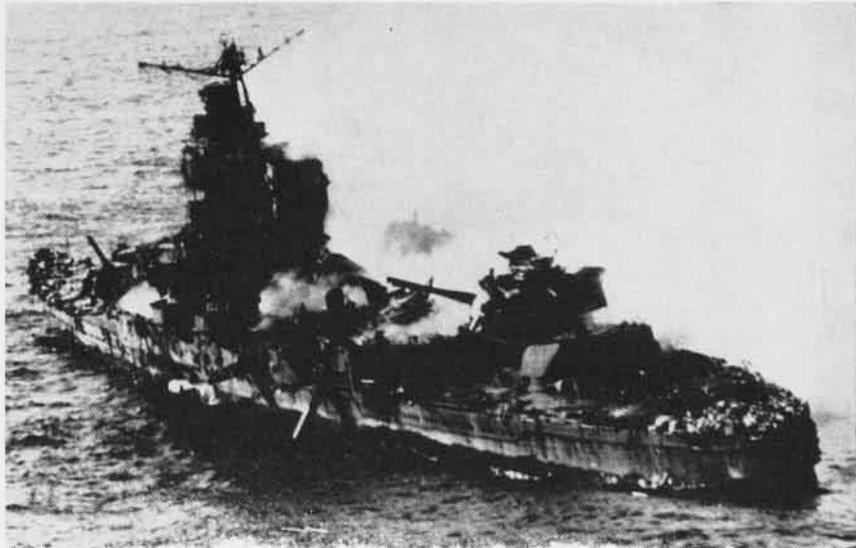
The FJ man had tremendous emotional control (GUTS) and CONFIDENCE. He knew what he was doing and he did it. Ol' Gramps joins right in on the chorus with the flight leader—YOU CAN'T KNOCK SUCCESS!



Dil hits to Kill!



DIVE BOMBER ATTACK on heavy cruisers *Mogami* and *Mikuma* as portrayed by Norman Bel Geddes. Ships were attacked by Midway-based



Marines on 5 June and by planes from *Enterprise* and *Hornet* next day. Photo of *Mikuma* was made after the carrier air attack.

IN RETROSPECT

THE BATTLE OF MIDWAY

By Adrian O. Van Wyen, DCNO (Air) Historian

TWENTY YEARS AGO this month the United States had been at war for six months. Such damage as its forces had inflicted on the enemy was more temporary than permanent, and successes in battle were more psychological than real. There was little promise of the overwhelming victory that eventually would be ours.

The attack on Pearl Harbor had crippled both the Pacific Fleet and its principal base outside the continental limits. Wake and Guam had been lost, the Philippines had been overrun, and the red glow of the Rising Sun had spread swiftly and easily down the Malayan Peninsula, through the East Indies, across New Guinea and was moving into the Solomons. To oppose it, the United States employing five different carriers, never more than two at a time, had made hit-and-run raids on enemy outposts, had carried Army Air Force bombers to within range of Tokyo and, in the Battle of the Coral Sea, had slowed the Japanese advance in the South Pacific.

To achieve even that small measure of success, the cost had been high. The *Lexington* had been lost and the

Yorktown badly mauled by enemy air attack; *Saratoga* had been put in the yard by a torpedo. Only *Enterprise* and *Hornet* were in good shape and *Hornet* had yet to taste battle.

In that situation, Adm. C.W. Nimitz, Commander in Chief of the Pacific, was informed by naval intelligence that the Japanese were assembling a strong naval force for yet another advance. Dismaying as the news must have been, advance knowledge of enemy plans and timetables gave Adm. Nimitz an advantage which he was not slow to use. The advance would be two-pronged, one against the Aleutians and the other on the island of Midway. Of these, Midway was by far the most important to the future prosecution of the war. Its successful occupation by the enemy would not only extend the perimeter of his control in the central Pacific and strengthen his outer defenses, but would also seriously threaten, if not neutralize, our base at Pearl Harbor.

Strengthening of Midway defenses began immediately. The island was fortified and its garrison reinforced. Its commander was given all the air-

craft the island could operate effectively. Fleet forces were also assembled. The *Yorktown*, damaged survivor of the Battle of the Coral Sea, was rushed to the yard for repairs. *Enterprise* and *Hornet* with their cruisers and destroyers, only days out of Pearl Harbor on their way to the South Pacific, were recalled. Availability of the *Saratoga*, out of the yard after repairs but not fully ready for sea, was doubtful unless the enemy delayed his movement.

Forces Engaged

Ships available to Adm. Nimitz were organized into three forces. One, composed of five cruisers and four destroyers, was sent to the North Pacific to defend against the advance toward Alaska. Two were organized for the immediate defense of Midway. Of these, Task Force 17, under command of RAdm. Frank Jack Fletcher, was composed of the *Yorktown* with two cruisers and six destroyers, and the other, Task Force 16, under RAdm. Raymond A. Spruance, was composed of *Enterprise* and *Hornet* with six cruisers and nine destroyers.

In the two task forces, Adm. Nim-

itz had 233 F4F, SBD and TBD aircraft. He had another 115 aircraft on Midway Island, including Navy PBV's and TBF's, Marine Corps F2A's, F4F's, SB2U's and SBD's, and Army Air Force B-25's and B-17's. To intercept the enemy fleet and to give early warning of its approach, he had 19 submarines fanned out over the westward and northward approaches to Midway.

This was by far the most formidable U.S. naval force assembled for battle up to this point of the war. Compared to its prospective opponent, however, it was puny and in some respects had the look of a "pick-up team." Al-



RADM. FRANK J. FLETCHER commanded our carrier forces and TF-17 with *Yorktown*.

though *Yorktown* had full operating capability, she had been hastily repaired and much of the work was temporary. A 90-day repair job had been done under crash conditions in two days and two nights. Her air group, which had been at sea for four months, had suffered losses in action and was in need of a rest. Of her regulars, only VB-5 and a detachment of VF-42 were on board. Ironically, neither of these participated under their own designation and therefore escaped the initial notice of historians.

The VF-3 recorded as on board for the battle was made up of 11 pilots from VF-3 and 16 from VF-42. The VS-5 was actually VB-5 under a temporary redesignation to avoid confusion with VB-3 in communications. The *Hornet* was in excellent shape but without battle experience. Her commanding officer, Marc A. Mitscher, was held over for command during the battle in spite of his promotion to

rear admiral. The two task forces were commanded by non-aviators, one of whom had had comparatively extensive experience in carrier combat command and the other, sent in as an alternate for the ailing Adm. Halsey, had none. But under the severest of tests, this "pick-up team," commanders and individuals alike, fought with the skill of old pro's and forged a victory that would be acclaimed as the turning point of the Pacific War.

The opponent was strong and experienced. Adm. Yamamoto, Commander in Chief of the Combined Fleet, had 11 battleships, 12 cruisers,



ADMIRAL Chester W. Nimitz, Commander in Chief, Pacific, directed over-all operation.

35 destroyers, 16 submarines, 6 aircraft carriers, 3 seaplane carriers, 12 transports, and numerous support ships under his immediate command. His aircraft strength numbered 312, of which 284 were carrier types and 28 scout-observation types, plus additional scouts on battleships and cruisers.

Japanese Plan

His plan of battle called for the use of his submarines as advance scouts and for the employment of his other ships in four separately operating elements, each to be committed to action in turn. One element, built around two aircraft carriers, was responsible for the attack on Dutch Harbor and the occupation of Kiska and Attu which, as the opening move of the battle, was intended to draw U.S. fleet forces northward, leaving the approach to Midway clear of opposition.

The attack on Midway itself would be initiated by a Carrier Striking

Force built around four carriers under command of VAdm. C. Nagumo, veteran carrier commander of the attack on Pearl Harbor and of actions which had spearheaded the Japanese advance in the southwest Pacific. This force would destroy the island defenses and clear the way for the occupation and support group standing off to the west. The main body and fourth element, containing heavy surface units and one small carrier, was to operate in reserve ready to pounce upon whatever U.S. ships ventured forth to oppose the occupation.

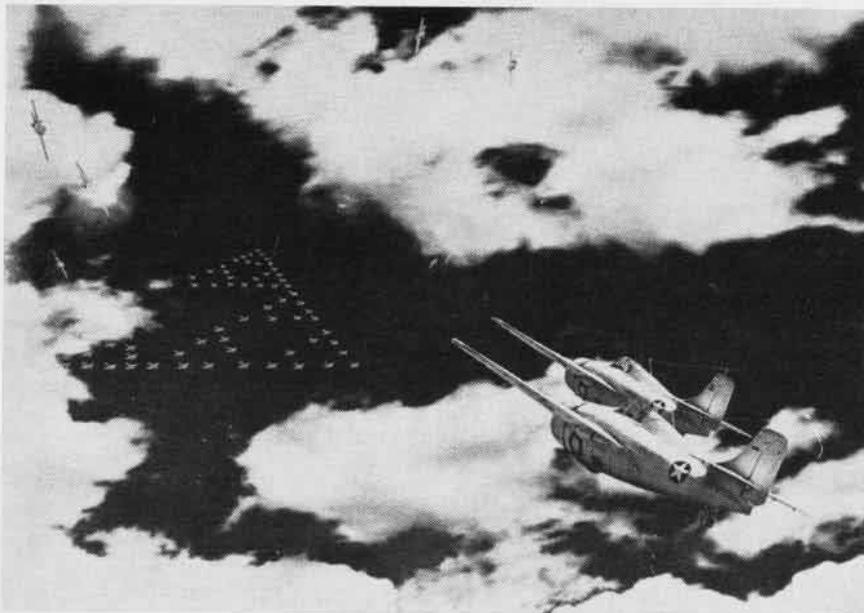
When early action by the U.S. fleet



REAR ADMIRAL R. A. Spruance commanded Task Force 16 with *Hornet* and *Enterprise*.

against the Striking Group upset enemy calculations and the Japanese either refused or were unable to alter their basic plan, only one element of their total force was pitted against the entire U.S. force, and the battle was fought on nearly equal terms.

ADM. NIMITZ deployed his forces early. Spruance, with *Hornet* and *Enterprise*, put to sea on 28 May; Fletcher with *Yorktown* sailed two days later. On 2 June the two forces joined at sea about 325 miles northeast of Midway, at which time Adm. Fletcher assumed tactical command. Carrier air search began on 1 June covering the area of suspected approach. Search from Midway by PBV's and B-17's began 30 May over the western approaches to Midway and to the northwest as far out as the weather front permitted. Information of the enemy's approach was essential.



"MANY ENEMY planes heading Midway," depicted in Bel Geddes model. F4F Wildcats shown here and F2A Buffaloes flown by Marines, based at Midway, intercepted the attack 30 miles out.

Opening Moves

The battle opened according to Japanese plan. Early on the morning of 3 June, the carriers *Ryujo* and *Junyo* launched their attack on Dutch Harbor. Contrary to Japanese expectations, this attack did not draw fleet forces out of the Midway area, but rather was met by those already in the north Pacific. Neither the attackers nor the defenders scored very heavily, and what took place in that area had little effect on the outcome of the main battle.

At about the time the first air strike on Dutch Harbor was returning to its carriers, a PBV from Midway reported

an enemy force of 11 ships on an easterly course, about 700 miles west of Midway. This force was attacked by B-17's in the afternoon and by four PBV's armed with torpedoes after midnight. The PBV's scored one hit.

The Battle—4 June

Dawn of the 4th broke clear in the Midway area. With it came a report of enemy carriers to the northward, followed shortly by another report that many enemy planes were approaching Midway. The flight—108 planes that had taken off from the four carriers at 0430—was met 30 miles out by Marine fighters, but the Marines were

so outnumbered and outmaneuvered that of the 26 F2A's and F4F's intercepting, only nine returned to base and seven of those were badly damaged. The attack was not stopped and at 0630 came in big and strong. Many buildings were hit, the command post was destroyed, gasoline tanks were blown up, but either by design or poor marksmanship, the runways were unharmed. Damage was extensive, but when the attack leader reported that a follow-up strike was necessary, it was clear that the objectives had not been achieved.

That report which Adm. Nagumo received at 0700, set off a chain of circumstances important to the outcome of the battle. The Admiral had held 93 planes in reserve, specially armed and ready to attack any ships discovered in his general vicinity. Shortly after receiving the report, he ordered that these aircraft be rearmed and made ready for the second strike.

Nagumo's decision may have been helped by the attack of Midway-based aircraft which began at 0710 as four B-25's and six TBF's attacked with torpedoes. He fought them off without difficulty; only two bombers and one torpedo plane survived to return to Midway. That attack was followed at 0755 by 16 Marine SBD's, then by 15 B-17's from high level and then by 11 Marine SB2V's. Each time he escaped damage. Although the battle was going very much in his favor, all was not serene.

Shortly after the torpedo attack, one of his search planes, which had been out since early morning, reported sighting 10 enemy ships, and he faced



JAPANESE CARRIER air attack early on the fourth did serious damage to Midway installations and destroyed oil storage tanks on Sand Island.



DIVE BOMBERS from USS Yorktown scored three direct hits on the *Soryu* so damaging that she was abandoned 20 minutes after attack.

the question of whether his order to rearm for a second Midway strike should be rescinded. Before the first dive bombers came in, he had decided that the ships were a more important target, and rather than take the time to rearm again, he would launch the attack with whatever ordnance the planes then had. As the last dive bomber attack came in, he was informed that a carrier was among the 10 ships reported and his new decision became irrevocable. At this point his planes began returning from Midway and any plans for launching had to be postponed for the recovery. As it was completed, he pulled away from Midway by ordering at 0905 a 90-degree change of course to ENE. His planned strike was brought up on deck but before it could be launched, there would be other things requiring his attention.

In the meantime, Adm. Fletcher, having heard the early reports of aircraft sighting the enemy carriers, sent Spruance in to the attack. Spruance set course to reduce the range, and at 0702, *Hornet* and *Enterprise* began launching all aircraft except those needed for CAP. The strike was composed of 20 F4F's, 67 SBD's and 29 TBD's. Within an hour after it departed for the attack, a *Yorktown* group of 6 F4F's, 17 SBD's and 12 TBF's was also in the air. En route the torpedo squadrons flew at low altitude to conserve fuel, and the dive bombers and fighters flew above them. With scattered clouds between them, the squadrons became separated and arrived at the predicted enemy position at different times. Upon reaching it, they found nothing but empty sea. Unknown to the strike leaders, the reported enemy location was off by about 40 miles, and further, the enemy ships were no longer on the reported course. *Hornet* fighters and dive bombers continued onward and never found the enemy carriers. Some landed on Midway, some ditched; none took part in the day's battle.

At this point, LCdr. John Waldron, leading the *Hornet* torpedo squadron, sighted smoke over the horizon and using it as his guide found the enemy carriers at 0925. But the enemy was also alert and began the counter attack while Torpedo Eight was still eight miles out. With no fighter protection and without benefit of coordinated action by other squad-



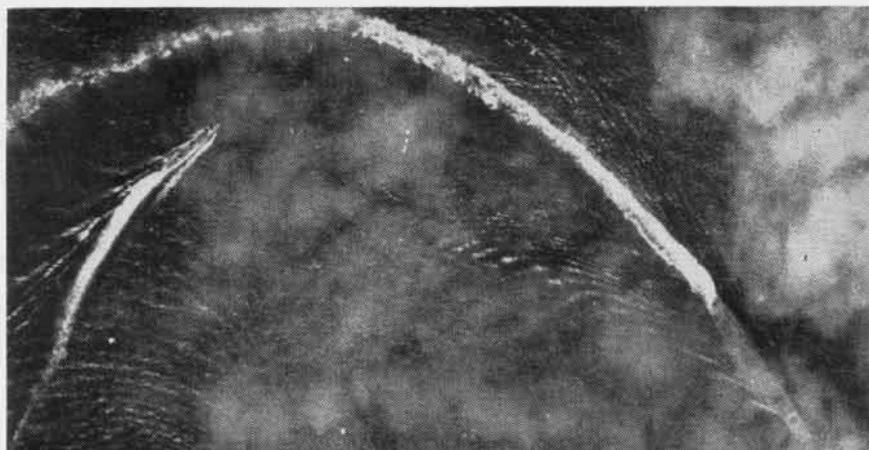
ENTERPRISE dive bombers finish the *Kaga* with lethal hits, one penetrating the deck near the amidships elevator and another exploding among the fueled and armed planes on the deck.

rons, the 15 planes of VT-8 went in alone. Through a hail of anti-aircraft fire and beset on all sides by the Japanese fighters, they continued their gallant attack from which no plane returned and only one man survived. Minutes later, *Enterprise's* VT-6 sighted the force and went in, meeting an almost similar fate—10 of 14 planes shot down. At 1000, VT-3 of the *Yorktown* attacked with fighter escort. These three determined attacks scored no hits. Of the 41 torpedo planes involved, only six returned.

It was a sacrifice but one which opened the way to victory. The attack forced the enemy carriers into

such radical maneuvering that they could not launch their own planes and it pulled down the *Zero* fighters, leaving an opening overhead for our dive bombers which attacked next with devastating effect.

Yorktown and *Enterprise* dive bombers arrived on the scene almost simultaneously and from different directions. Without prearrangement, they selected separate targets for their bombs. *Enterprise* took on *Kaga* and *Akagi*. Coming down from above with no fighter interference and little anti-aircraft fire, they plunked a near miss 10 yards abeam of the bridge, put one bomb through the flight deck near the



THE CARRIER *Kaga* and a Japanese destroyer cross tracks as ships maneuver during attack by Midway-based planes. In another hour, carrier aircraft reduced *Kaga* to a flaming inferno.

amidship elevator, and another among the fueled and armed planes on the flight deck aft. These were enough to finish the *Akagi*. Four direct hits took care of the *Kaga*.

Yorktown SBD's hit the *Soryu* with three bombs, and the ship was abandoned in 20 minutes. Three carriers had fallen to the attack; 16 dive bombers were lost. But *Hiryu* was overlooked, and it would prove an expensive oversight. Within half an hour after the attack, she launched 18 dive bombers and six fighters. It was not the strike over which Adm. Nagumo had deliberated earlier in the morning, but it was now the best he could do.

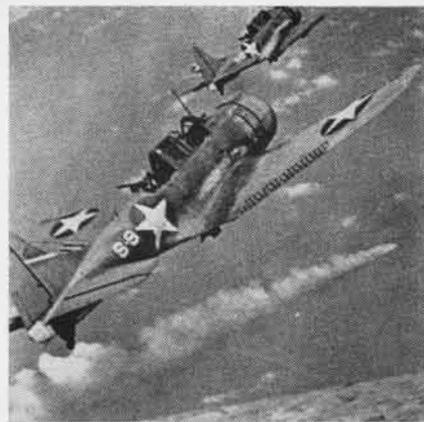
As our planes returned to their respective carriers, *Yorktown* radar reported 30 or 40 enemy planes approaching from 40 miles out. It was a few minutes before noon. The SBD's not yet landed were ordered to clear out, and the force made ready for the attack. CAP took care of 9 or 10 of the attackers, and DD's shot down a couple of others, but six *Val* dive bombers broke through and scored three hits which put the *Yorktown* dead in the water in 20 minutes. The fires were brought under control, and in little more than an hour, she was underway at 20 knots and refueling fighter planes.

At this critical point, a second attack from *Hiryu* came in. Eight F4F's were launched with an average of only 25 gallons of fuel each, to join four others already in the air. They met six fighters and ten torpedo bombers. Neither the interceptors nor ships' AA

could stop the attack, and at 1442, two torpedoes opened *Yorktown* on the port side, causing an immediate list of 17 degrees that was increasing. The ship lost all power and was unable to counterflood. As she seemed about to capsize, the order was given to abandon ship.

A *Yorktown* search group of 10 SBD's, which had been sent out to look for additional enemy carriers, had been out about three hours. Just as the *Yorktown* was heeling over from the torpedo hits, the pilot on the extreme left sector of the search found the *Hiryu* and reported her location. *Enterprise* launched 24 SBD's, ten of which were from the *Yorktown*, and at 1700 this group went in for their second attack of the day. *Hiryu* was running at full speed, but she could not escape. She took four hits, one of which blew off the forward elevator platform and smashed it against the island. She was finished. Finished also was the decisive part of the battle, but there was more action to follow.

Adm. Yamamoto still in the background with his heavy surface units ordered the Aleutian force, with two carriers to join up with his ships, pulled the transports of the Midway occupation force northwestward, and moved his heavy surface strength forward to support his badly wounded striking force. Battleships, cruisers and destroyers of the Occupation Covering Force were already enroute. Yamamoto was looking for battle with what he considered the remnants of the U.S. force. He ordered all ships



SBD DIVE BOMBERS ready to peel off for the attack—from film made during the battle.

to prepare for a night engagement. But as more reports came in, he could no longer ignore the fact that his air power was gone, and at 0255 on the morning of the 5th, he accepted the situation and ordered a general retirement.

Adm. Spruance, also aware of the possibilities as well as the dangers of a night engagement, withdrew eastward during early hours of the night. At midnight he reversed course to be in position next morning to either follow-up attacks on the retiring enemy or to oppose a landing on Midway if one was attempted.

Carriers Sunk

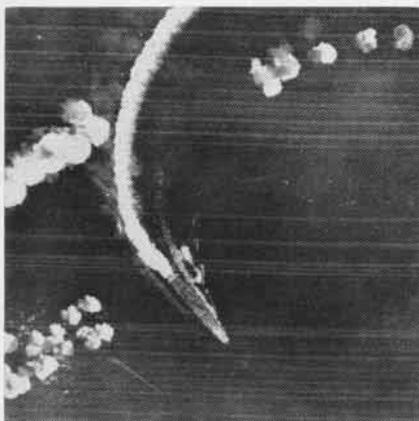
The death throes of the stricken ships carried into the night. Fires raging on the *Akagi* were described by a survivor as "just like hell." She was abandoned at 1915 and sunk by a Japanese torpedo before sunrise. *Kaga* was also a mass of flames. About three hours after the attack, she exploded and at 1925 sank. *Soryu*, burning so fiercely that she was abandoned 20 minutes after the attack, sank at 1913. The submarine *Nautilus* was initially credited with an assist in her sinking, but later evidence indicates that *Soryu* went down from air attack alone. The *Hiryu*, last to be hit, was also the last of the enemy carriers to sink. As a result of uncontrollable fires and explosions, she was abandoned at 0315 and, after two Japanese destroyers hit her with torpedoes, she sank at 0900 on the morning of the 5th.

That same morning *Yorktown* was still very much alive. The destroyer *Hughes*, which had stood by during the night, reported that the fires had



USS YORKTOWN lists heavily to port after surviving the night alone. Attempts to salvage her were foiled by a submarine attack on the 6th, and she sank to the deep early on June 7.

burned out and that salvage seemed possible. A small party was put on board and about noon she was under tow by the minesweeper *Vireo* barely making headway. Before dawn on the 6th, the destroyer *Hammann*, with a salvage party made up from the *Yorktown* crew, secured alongside to supply the power needed to trim up the ship.



VIOLENT MANEUVERS by the *Akagi* succeed in avoiding bombs dropped from high altitude.

But shortly after noon, the submarine I-168 got inside the destroyer screen and at 1330 fired 4 torpedoes. One missed, two passed under *Hammann* to explode against the *Yorktown*, one hit the *Hammann* amidships. The combined effect literally blew the *Hammann* apart, and she sank in four minutes. *Yorktown* was also finished, and at 0600 on 7 June, she went down.

Pursuit—5-6 June

Meanwhile, opposing forces sought contact. Early on the 5th a PBY from Midway reported the location of ships which were the cruisers *Mikuma* and *Mogami* limping homeward after being damaged in a collision during the night. A group of B-17's sent out to attack reported at 0615 that the reported ships could not be found. Twelve Marine SBD's and SB2U's went out next and, by following an oil slick which *Mikuma* was trailing, found the targets at 0805 and scored six near misses. One SB2U, piloted by Capt. Richard E. Fleming, crashed on an after turret of the *Mikuma*.

Adm. Spruance also received reports of ship sightings, but none proved very productive. On the basis of a submarine report that cruisers and destroyers were approaching Midway, he set an interception course at 0420.

Two hours later he learned that the force had turned about and was retiring and at the same time received another report that a large disposition of ships was retiring 200 miles to the northwest. He changed course to give it stern chase, but a search strike group of 32 SBD's launched at 1543 found nothing but a lone destroyer which they attacked without success.

With nothing to show for a full day's effort, Spruance turned once more to chase the crippled cruisers. Search planes launched before sun-up found the targets and successive strike groups were launched. *Hornet*, sent off 26 SBD's and 8 F4F's at 0800 and



JAPANESE CARRIERS burning after attack by dive bombers from *Enterprise* and *Yorktown*.

another 24 SBD's and 8 F4F's at 1330. *Enterprise* launched 31 SBD's, 3 TBD's and 12 F4F's at 1045. These attacks successfully finished the *Mikuma* and were thought to have sunk the *Mogami*, but she reached Truk.

By sundown Adm. Spruance, having reached a position about 400 miles west of Midway, turned about and retired to Pearl Harbor. Adm. Yamamoto was still hunting. All day on the sixth he was on course intended to intercept Spruance, but he was unsuccessful. Early on the 7th, he too retired. The battle was over.

THE DEFEAT was decisive. In terms of ships and aircraft, the final score stood at 1 carrier, 1 destroyer and 150 aircraft lost by the United States and 4 carriers, 1 heavy cruiser and 250 aircraft lost by Japan. In less tangible results, the outcome of the battle was disastrous to the Japanese. Loss of four carriers and some 100 first line carrier pilots not only

deprived them of the powerful striking force with which they had achieved their early successes, but also deprived them of the flight decks from which their remaining experienced air groups could operate. Lack of these decks made it necessary to assign carrier pilots to shore bases where their highly specialized skills could not be utilized effectively. Many were assigned to Truk and to Rabaul from whence they were committed piecemeal to the campaign in the Solomons. When Japanese carriers were again available in the numbers needed for aggressive action, hastily trained units were on board that lacked both the ability and skill of the earlier groups. The outcome of the battle therefore had more than immediate effect and it was truly the turning point of the war in the Pacific.

The Battle of Midway was the second of five major naval engagements during World War II in which the



THE END of the *Hiryu* spells the end of the Japanese Carrier Striking Group at Midway.

outcome was determined by air power alone. Although the first had been fought only one month before, it was apparent at Midway that the lesson had been learned. Both sides had great respect for aviation, and both were aware of its destructive potential. The superiority of the Japanese in both numbers of heavy surface units and in their fire power was so overwhelming that the outcome of a traditional naval battle could hardly have been in doubt. But in the face of air power, that superiority was impotent indeed. The Battle of Midway stands not only as a monument to the gallantry and skill of a handful of naval airmen, but as a testimony to the dominance of air power in the control of the sea.

F4H PHANTOM SCORES NEW RECORDS



NORDBERG MADE 30,000-METER CLIMB



20,000 MARK WAS MADE BY LCDR. BROWN



LCDR. YOUNG FLEW THE 25,000-METER RUN

THE F4H-1 *Phantom II* has gone on to new unofficial world records at NAS POINT MUGU.

Piloted by LCDR. Del W. Nordberg, the McDonnell-built, General Electric-powered jet climbed to 30,000 meters (98,425.2 feet) in 371.43 seconds. The present official world record is 904.92 seconds, set by an Air Force F-104 at Point Mugu in 1959.

On March 30 and April 3, the F4H-1 bettered the 20,000 meters (65,616.8 feet) and 25,000 meters (82,021.0 feet) time-to-climb records with times of 178.5 seconds and 230.44 seconds. Official records are 222 seconds and 266 seconds, also held by the F-104.

The 20,000-meter climb was flown by LCDR. F. Taylor Brown; LCDR. John W. Young flew the 25,000-meter run.

The record claims are being filed for official recognition through the U.S. National Aeronautic Association with the *Federation Aeronautique Internationale*, world governing body for aviation records with headquarters in Paris.

If authenticated, the records will give the F4H-1 all existing and claimed time-to-climb records at all altitudes. In March, the F4H-1 made speed climbs at NAS BRUNSWICK, Maine, to claim the 3,000, 6,000, 9,000, 12,000 and 15,000 meter records in the respective times of 34, 48, 61, 77 and 114 seconds.

The Navy F4H-1 already holds the world speed record of 1606 mph. on a straightaway course, the 500-kilometer closed course record of 1216

mph, and 902 mph at an altitude of 125 feet for 3000 meters.

NAS POINT MUGU was selected for the time-to-climb trials because instrumentation used by Pacific Missile Range Headquarters and Naval Missile Center for tracking missiles can also be used for flight certification.

For the 30,000-meter flight, the F4H was held on the runway by a holdback bridle until full power was reached. An explosive bolt fired, releasing the aircraft and starting the timing clock. When airborne, LCDR. Nordberg held the aircraft close to the runway to gain speed and then began a stair-stepping pattern to 98,000 feet.

More than 100 persons at Point Mugu supported the altitude dash, including radar operators, optical trackers, weather personnel, data plotter

personnel, maintenance personnel and others. Air Development Squadron Four and Guided Missile Unit 41 provided ground support facilities. Edwards Test Center supported the operation with radar and optical tracking.

Largest Replacement Class VP-30 Trains 30 in ASW Techniques

At NAS JACKSONVILLE, the 30 members of Class 1-62, engaged in replacement pilot training under the direction of VP-30, constitute the largest class of replacement pilots the "Pro" squadron has trained since it was commissioned in June 1960. The normal class of replacement pilots is 15.

The Atlantic Fleet's ASW replacement pilot training squadron, VP-30 trains both newly designated Naval Aviators and experienced pilots who come from desk jobs or administrative flying billets involving little or no flying. The job of the Pro's is to teach the latest ASW techniques in the P2V *Neptune* and P5M *Marlin* before students are assigned to Atlantic Fleet patrol squadrons.

The ten-week syllabus for class 1-62 includes a total of over 3200 hours of flight time plus more than 7800 hours of ground training.

VP-30, commanded by Cdr. Walter W. Honour, has graduated over 1000 pilots, tactical coordinators, aircrewmembers and maintenance men in the past two years. To do this, the VP-30 Pro's have flown over 18,000 hours and logged well over 16,000 landings.



F4H WHICH SET NEW TIME-TO-CLIMB MARKS

DAC Honors Top NavCad Attained Highest Score for 1961

Ens. Kenneth M. Brooks was selected outstanding Naval Aviation Cadet for 1961, the Golden Anniversary of Naval Aviation. He is the first man to come up from the enlisted ranks to win this coveted honor. He received the highest over-all score in flying and academics upon graduation from advanced training at Corpus Christi, Tex.

A gold wrist watch was presented to Ens. Brooks by the Daughters of the American Colonists. RAdm. F.A. Brandley, ACNO (Air) participated in the ceremonies. In his Pentagon office, the Honorable Fred Korth, Secretary



SECNAV INSPECTS BROOKS' GOLD WATCH

of the Navy, congratulated Ens. Brooks on his achievement.

The selection of top cadet is based on grades in the areas of flight proficiency, academic instruction and officer-like qualities.

A member of Attack Squadron 145, Ens. Brooks flies the propeller-driven Douglas AD-6 *Skyraider* from the decks of the USS *Lexington*.

Whiting Aids Storm Victims Station Provides Food and Shelter

When a tornado hit Milton, Fla., on the last day of March, no Navy personnel or their dependents were killed, but 25 families were left homeless and six persons were hospitalized.

The toll for civilian population was high: 16 lives lost, 78 injured and property damage totaling over \$1½ million.

Rescue teams were dispatched from NAAS WHITING FIELD in less than ten minutes after the storm struck at 0904. They worked in drenching

downpours all that day, through the night and the next day searching for injured and dead.

The Whiting galley sent more than 4000 sandwiches to the storm-ravaged area, and a food center was set up in the local schools. Stewards and messmen, who were on liberty, voluntarily reported back to help with the task of feeding officers and men involved in the search.

The Chief Petty Officers' Club furnished meals for homeless Navy families who were quickly housed in temporary quarters aboard the station and in Navy housing. Those who could find any of their belongings in the wreckage were offered storage space in Whiting Field buildings, and Navy vehicles shuttled back and forth bringing in loads of private possessions.

The Navy Relief Society and Whiting wives clubs set to work making grants, collecting clothing, layettes, bedding and cooking utensils for those who lost their belongings.

The Red Cross went into action. According to RAdm. L.C. Simpler, USN (Ret.), president of the Milton chapter, "By nightfall half the town could have been housed by residents of the city who were not hit. I've never seen people so willing to help."

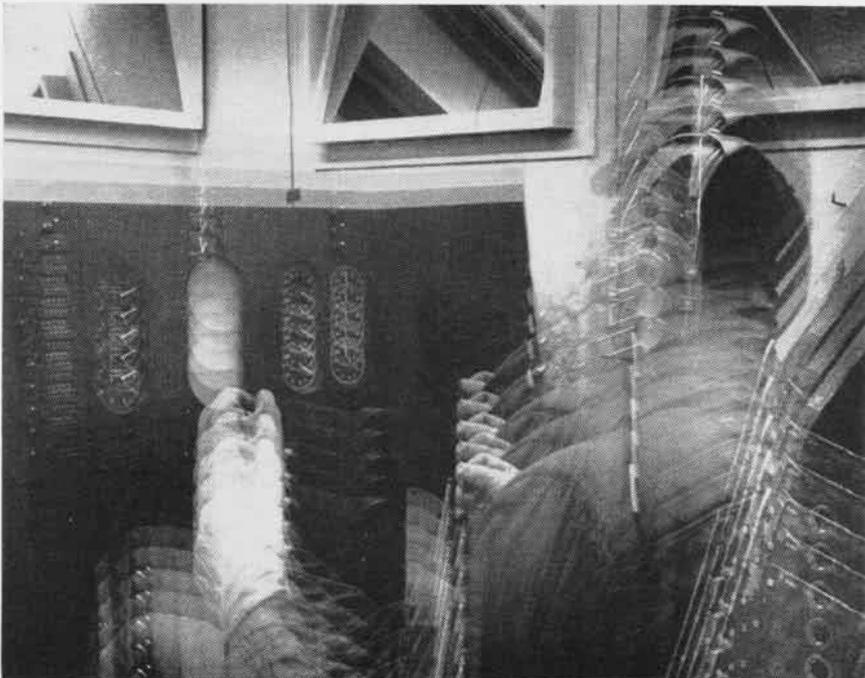
14-Week Course in 5 Days PR(B) School Schedule Accelerated

Chief Parachute Rigger Ronald C. Eye recently completed the 14-week Class (B) PR school at NAS LAKEHURST in an unprecedented five days.

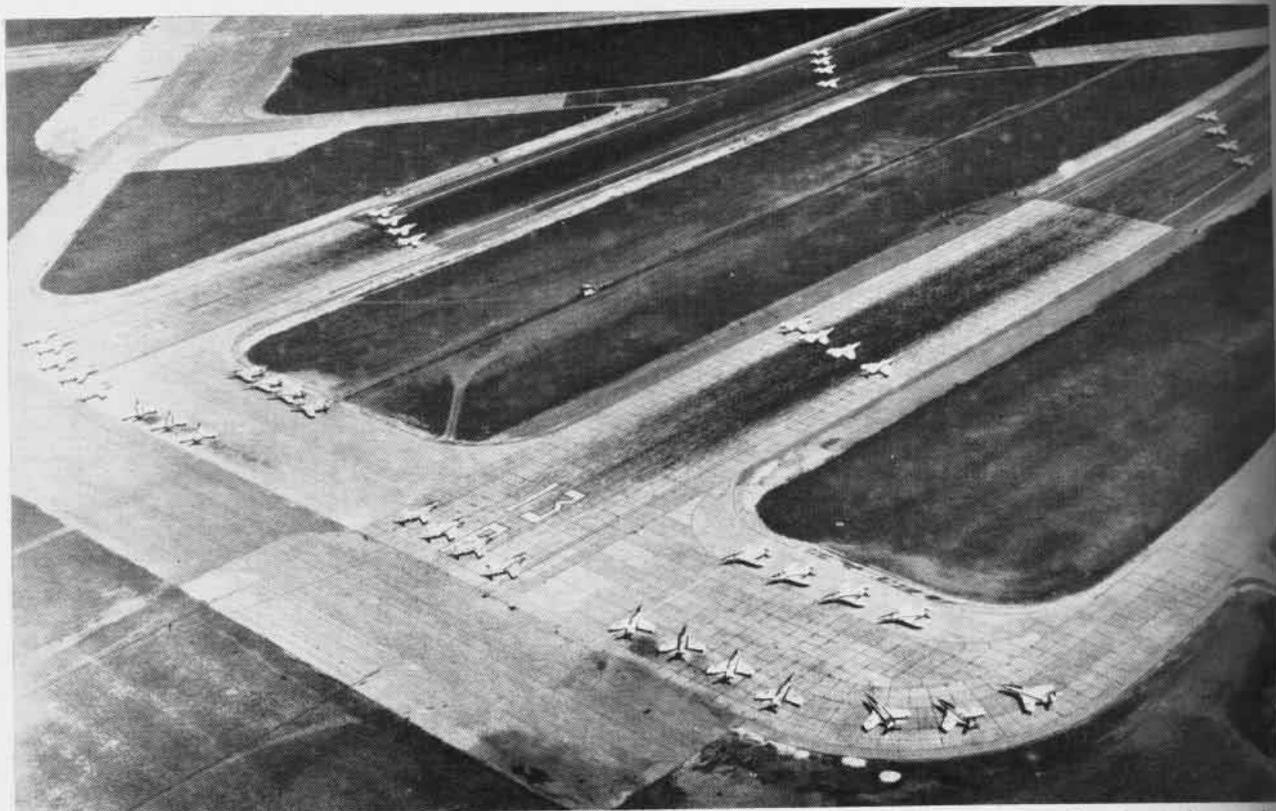
This was made possible when the Chief of Naval Operations instituted an acceleration program designed to increase the number of parachute riggers fully qualified to service and maintain the complex equipment associated with the Navy's newest types of high performance aircraft.

Upon entrance to the school, students are required to take a "diagnostic" examination to determine general knowledge in six subject areas. Attaining a score of 75% or better, the student is then permitted to take final examinations on the subject. Should he score on these tests a minimum 62% or better, he is considered to be a graduate.

Chief Eye scored better than 75% on all six subject areas and received a 77% score on the school's final comprehensive test on his fifth day of attendance. A Certificate of Graduation was presented him by LCdr. David A. Hurt, Training Officer of the Parachute Rigger Schools, Naval Air Technical Training Unit, Lakehurst, N.J.



THIS SHAKING, but not shattering, experience is part of the human vibration studies made by Boeing's Military Aircraft System Division at Wichita, under contract with the Office of Naval Research, to determine crew reaction and performance when exposed to aircraft vibrations resulting from turbulent air. As the study continues, random vibrations on volunteers will be simulated at altitudes of 500 feet and at speeds of more than 450 miles per hour.



SALUTE TO MAINTENANCE. Formation of 43 F9F's of VT-21, flown by instructors, takes off dual runways of NAAS Kingsville in a special flight honoring maintenance department for "sustained outstanding performance." Formation flew 350 miles in the Corpus Christi area.

MAINTENANCE: GROUNDWORK FOR SAFETY

GRAMPAW PETTIBONE, the erudite and explosive recorder of Naval Aviation safety matters, was still in a relatively calm state of disbelief. The Naval Air Basic Training Command's Squadron Three accident-free mark of 100,000 hours was still gnawing at him.

"I still don't see how they did it!" was his oft-repeated phrase of the day.

"In the days when I was learnin' this flying business, maintainin' the airplane was also my business. Many's the night I spent with the glue pot and scissors, the bailing wire and the pliers, fixing up my own bird, so it would get me in the air again. But how can you take a flight line with 150 birds and keep it going day after day without a single goofball mistake?"

It was hard enough for the old man to swallow the fact that VT-3 had somehow managed to overcome the mistakes inherent in the teaching of neophytes. It was almost impossible



Gramps Says:

**THIS
MAKES
ME FEEL
GOOD!**

to convince Pettibone that maintenance accidents had been prevented for 100,000 hours.

"Yessir," he opined, "VT-3 shoulda had eight maintenance accidents during that time."

Gramps remembered reading (NANEWS, September 1960) about VT-3's Quality Control program. But at the time he read it, he'd tossed it off as "just another fool management scheme that'll either gather dust or won't work, or both."

But Quality Control of maintenance, as practiced at VT-3, has spread to all of the Naval Air Training Command and is receiving a just share of the credit for improvement of the

safety of flight in the command. In the first eight months of fiscal 1962, the CNATra mark for each 10,000 hours of flight stood at .89 accidents, best in its history.

The record established by VT-3 did not occur overnight. The squadron's Quality Control Division was set up back in October of 1959 and has gone through a series of refinements ever since.

The current Chief of Naval Air Basic Training, RAdm. Magruder H. Tuttle, attributes the safety record to improvement in three key functions in flight training. Two of the "keys"—the instructor and standardization—will be discussed next month. The third—establishment of the training squadron concept—affects the maintenance program as well as the operations program.

Prior to May 1960, the training command consisted of many small training units, each reporting to the commanding officer of the base at

which they were billeted. In 1960, the training squadron came into being as a separate command, giving the squadron commander direct control of maintenance of aircraft, disciplinary matters, administration and all matters directly associated with flight safety.

The concept, in effect, gave the "users" of aircraft the responsibility for maintenance of the machines. It also gave the squadron commander closer supervision over on-the-job training and formal training of maintenance personnel.

"The squadron concept created a closer identity among the team members charged with the common mission of conducting safe and effective flight training," Adm. Tuttle said.

"General over-all maintenance has steadily improved, especially during the past two years. Recognition of a job well done does not always filter down to the loyal, hard-working maintenance groups, and pats on the back are few and far between. However, the maintenance groups continue to pursue a never-ending task to provide large numbers of aircraft and do derive a great satisfaction when their squadron meets its assigned flying tasks."

Training Squadron Three, which calls itself "the Navy's Safest Squadron" and has four consecutive CNO Safety Awards to back up its contention, boasts that there has not been a single accident caused by improper maintenance in four-and-a-half years.

DETAILS of the Quality Control program at VT-3 were outlined in the September 1960 issue of

NANews. A special QC division, with several senior petty officers and one commissioned officer, was established to monitor the maintenance of the squadron's aircraft. The division members personally pass on all major checks, component changes, acceptance and transfer checks, and other flight safety items. Each flight system has its system inspector whose inspection is checked by the QC members. The QC division spotlights areas where improved procedures or better training are required.

Test flights after maintenance problems are solved are part of the QC process at VT-3. Test pilots, assigned on a limited basis for the one function, have to make 115 check-off readings during test flights. Attention to detail by men proud of their work underlies the entire Quality Control program.

Students at VT-3 are engaged in formation flying and aerial gunnery, two of the most critical phases of air training, a fact which adds to the befuddlement of Grampaw. He is quick to say that maintenance PLUS good headwork by the flying members of the VT-3 team contributed jointly to the outstanding safety mark.

In Training Squadron One, where all prop students get their first introduction to flying, the Quality Control program is given a share of the credit for the safety record. Until a mid-air mishap occurred in late January, VT-1 was well on its way to emulating VT-3 and the 100,000 mark. VT-1 reached 79,000 hours before its string snapped.

With cadets and officer students flying the sturdy T-34 *Mentor* on 12 instructional flights prior to solo, the

landing phase is perhaps the most common practice maneuver in VT-1. In accumulating some 78,000 hours up to January 1962, the squadron had flown more than 62,000 flights and had logged almost 300,000 landings.

At VT-1, alert crash crew and runway duty personnel were given credit for "saving" 60 aircraft which would have landed wheels-up inadvertently. This meant fewer headaches and strike reports for maintenance personnel and gave them a chance to concentrate on keeping aircraft flying.

Bureau of Naval Weapons Instruction 5440.2, which set up a standard organization for maintenance departments, is given collateral credit for aiding in the safety program at VT-4, a T2J *Buckeye* squadron at Pensacola.

"As the re-organization [of the maintenance department] grew, so did the importance of each man and the awareness grew, too, that each maintenance man was beginning to thoroughly know his job and his responsibilities to that job, himself and the squadron," the C.O. reported.

Along with the VT-4 maintenance organization came a Leadership Council which steered a formal training program for all hands, emphasizing the importance of each individual in the organization. This was in addition to on-the-job training for each man.

"As a direct result, aircraft availability jumped ten per cent higher, and the squadron records show that no aircraft accidents have been attributed to maintenance causes. Material failures have been minimized to the extent that airborne emergency situations are so rare that we can say they are almost



MONDAY MORNING QUARTERBACKING. Each Monday personnel of VT-21 meet for on-job training, lectures, and week's work plans.



A FEW POINTERS. A Curtiss-Wright Corp. representative discusses T-28 engine with three VT-3 personnel who fly and service the aircraft.



READY FOR FLIGHT. *Thumbs-up signal by plane captain implies that aircraft is in all respects ready and represents "up" from all mechs who have worked on F11F prior to each flight.*

non-existent," the VT-4 report shows. A side benefit of the training program has been the increase in the number of men passing service advancement exams (99 passed out of 124 who took the exams).

Training Squadron Five, which flies the T-28 with a tailhook for carrier qualification landings, is justifiably proud of its safety record. This record includes more than 25,000 landings without accident on the training command carrier, USS *Antietam*.

A VT-5 maintenance policy of conducting oil strainer analyses every 15 hours of flight time is given part of the credit for the safety record. Oil strainers are removed, and contents are diluted and filtered through analytical paper. Metal which is found is inspected visually and chemically to determine the most likely source of trouble. A graph of each engine's 15-hour metal content is kept, and the engine's past and future are quickly determined. The 15-hour test, according to VT-5, has resulted in engine and cylinder changes "in many cases." Oil samples are sent to NAS PENSACOLA for spectographic analysis at the same time.

Under the new "calendar" system of maintenance, VT-5 aircraft are inspected every 90 days or 130 hours, whichever is earlier. Because the carrier aircraft take a lot of hard wear in making "first landings" on the carrier, the squadron is making "extra" 30-hour checks until the calendar system gets a thorough test.

In Training Squadrons Seven and Nine, which operate the T2J *Buckeye*, the maintenance departments have

placed a safety spotlight on the escape/emergency systems of the aircraft. All work on the escape seat, the air conditioning, liquid oxygen and pressurization systems is performed by the airframes and aviation survival branch.

There is a logbook for each ejection seat. The branch men keep careful tabs on the individual seats, including non-scheduled maintenance performed, drogue repacking dates, service changes, and items scheduled for replacement. Another log is used as cross-check for such items as face curtain replacement and cartridge changes.

"The intense desire on the part of the seat shop of the Airframe Division to provide the safest possible escape system has led to many improvements. Each man not only strives to improve his personal performance, but also constantly seeks new methods and tools with which to perform his assigned tasks," the squadron C.O. reports.

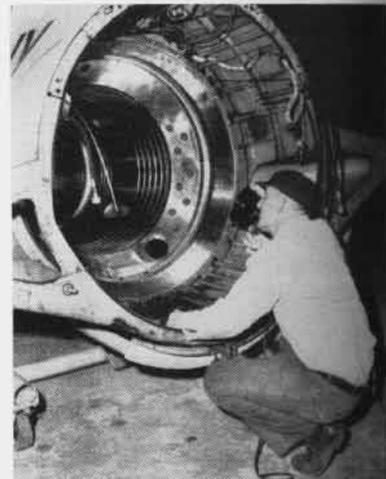
In the Corpus Christi complex of the advanced training command, there is also a belief that commissioning of the squadron system has had good safety results. Command-wide, CNAVAnTra has expressed the following philosophy on aircraft maintenance:

"Quality control and safety are synonymous. Each and every man doing maintenance work is in a position to make or break a safety program. Prevention of accidents is important enough to justify the time, attention and dedication that an effective prevention program requires."

Training Squadron 21, Kingsville, flying F9F-8 *Cougars* to a total of 24,000 hours and almost 1000 carrier landings in 1961, with two accidents,

insists that the maintenance record is an all-hands effort. No accident has been attributed to maintenance in more than three years. Part of the VT-21 program is an all-hands meeting each Monday morning, at which time, on-the-job training and leadership training are given.

VT-22, also at Kingsville, puts a lot of stress on Quality Control in a



INSPECTING FOR QUALITY. *Experienced mechanic looks closely at work done on F9F tail.*

program similar to that of VT-3. Quality Control inspectors put their stamp of approval on work accomplished within the systems divisions of the squadron. However, the attitude of each man is considered a large part of the success of the program.

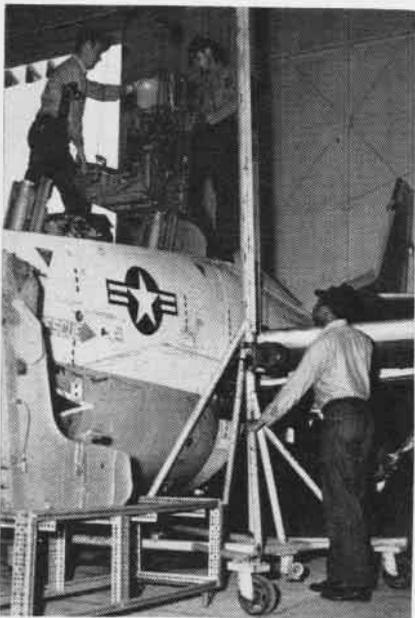
"The fact that our system works is the result of every man in the squadron wanting it to work. Twice a week each division sets aside an hour to discuss any problems. Since everyone in the division is present, everyone feels that he knows what is going on and that he can derive full benefit from the discussion. In a sense, the knowledge of the division is pooled at these times, and we all learn from the experience of the others. This emphasis on training is what makes our Quality Control program work, puts the Quality Control division in the position of being 'monitors' rather than 'enforcers.'"

Another Kingsville squadron, VT-23, periodically rotates its maintenance personnel "to avoid over-exposure to tasks." Complacency is avoided by the shifting, with a side result that more people can do more jobs. Maintenance personnel are given a formal training

program that includes use of Naval Air Maintenance Training Group facilities available at Kingsville.

At Beeville, VT-24 is expecting that its current transition to the calendar maintenance schedule will contribute to the elimination of maintenance error by setting up an orderly flow of in-check aircraft. The squadron, which has a mix of -8B and -8T versions of the *Cougar*, has a "card system" of its own, used as a spot check for inspecting work. Each member of the QC division draws one or more cards at random from the section relating to his speciality. When the in-check aircraft reaches that phase of inspection indicated on his card, a thorough QC inspection is performed. The same method is used to check aircraft in an "up" status.

VT-27 flies the fleet-type S2F *Tracker*, and its young pilots recorded 79,500 landings in 1961. With the



EASING MAN'S LABORS. VT-9-industry teamwork resulted in lightweight hoist for T2J seat.

more complex equipment and powerplant of the *Tracker*, maintenance personnel have started a "trouble shooter" system aimed at pinpointing problems encountered by student pilots. Before landing at New Iberia, La., the VT-27 home base, the pilots call in their "gripes" to base radio. By the time they taxi to the line, an experienced system maintenance man is waiting to discuss in minute detail all the troubles of the aircraft. "The direct communi-

cation between pilot and maintenance man eliminates much of the dead time in deciphering 'yellow sheets.' The maintenance crew is already preparing for the job as the forms are being filled out."

Other squadrons in both advanced and basic commands have similar reports, some stressing Quality Control methods, others giving credit to their training programs for the lack of maintenance failures in their aircraft.

But part of the credit, certainly, goes to the Leadership program initiated several years ago in CNATra's command and around the Navy. Whether the squadrons report it as "pride in their work," "attention to detail" or "better exchange of information," there seems to have been a rebirth of awareness of the importance of the maintenance man and his crew. The ever-increasing complexity of equipment, even in training planes, is realized at all levels of command.

When VT-24 was faced with the grounding of all its F9F aircraft during the summer of 1961, an "Operation Bootstrap" organization pulled the squadron out of trouble. The *Cougars* were grounded for suspected failure of internal fuel hoses, and it appeared likely that all 49 squadron aircraft would be laid up for seven valuable days.

When the problem was presented to T.P. Andricos, AMEC, and his crew, they jury-rigged a test pump, had a man crawl into the intake opening to make a quick test on each engine fuel pump. No engine disassembly was required, and, according to the squadron, every hose was tested in a two-day weekend period, and normal flight

training operations continued without interruption. "The professional approach and technical knowledge demonstrated by these men accomplished the required safety-of-flight inspection with a minimum of effort and allowed the squadron to meet its assigned mission."

This is only one of many examples of how improved personnel training and effective leadership help the Naval Air Training Command to meet its daily commitments.

Even Grampaw Pettibone, reluctant giver of praise, is ready to admit that "someone has delivered a powerful sermon and the word has been heard."

Said Gramps, "I always said that you couldn't climb the hill to success just sitting on your wide round bottom. You gotta get up on two feet and DO SOMETHING to climb that hill. When training squadrons start thinking and talking about Quality in their flying machines, they're up on their two feet, you might say."

Because no one gets the last word on Grampaw, he had to add, "Come to think of it, Old Gramps was a kind of Quality Control division all by himself in the early days, wasn't I? When that bailing wire didn't look right, I just didn't go until I'd fiddled and fussed and made it right. You might even say I had a personal pride in my work because of my personal interest in keeping that airplane flying. When you get young kids and old mechs taking a personal interest, you're moving in the right direction on maintenance. . . ."

(Second in a series on training safety. Next month: "Standardization Makes for Safety.")



LEAVE NOTHING TO CHANCE. Four-man pre-flight crew checks every detail of VT-22 F9F-8T prior to clearing the aircraft for student flights. (Fourth man is under the wing at left.)

DO-IT-YOURSELF

DESTROYERMEN'S PILOT RESCUE MANUAL

PILOT RESCUE FACTS, NAVWEPS 00-80J-2, a new publication of the Aviation Training Division of OPNAV, is one most pilots will agree every destroyerman should read.

The pamphlet points out that, even with helicopters on the job, destroyers and other surface units still make about half the pilot rescues. However, the helicopters take their half off the top—the easy rescues—leaving to our seagoing cousins most of the cases complicated by darkness, injury or entanglement in suit.

The 54-page booklet is loaded with useful bits of information, such as how to operate Hardman and other fittings to remove an oxygen mask before the bail-out bottle runs out and the unconscious pilot strangles; how to get a pilot free of a chute; how to inflate orally a Mae West, Mk. 3 or Mk. 4 lifevest; how to operate a variety of harness hardware.

If this manual is to accomplish its purpose it must be read, studied and mastered by the would-be rescuer *before* fate thrusts a pilot's life into his hands. This means two things: the book must get into the hands of the right people, and they have to read it.



To help get the book into the hands of all of the many thousands of people who might need it, an extra-large first printing was ordered and more will be run off when the supply gets low. Every submarine and surface ship which might conceivably have the chance to pick up a pilot has received copies. All but the smallest craft received several copies.

The problem of getting the right

people to read it once they have access to it is made easier by the light style and profuse illustrations. In addition to cartoons, the pamphlet has pages of photos illustrating pieces of flight gear and details of harness hardware.

However, for those pilots who do not care to leave such important matters to chance, there are things they can do to shade the odds in their favor and help make *Pilot Rescue Facts* a top item of surface sailor reading fare. Since there is no advertising like word of mouth, a plug to surface sailing friends and neighbors can help.

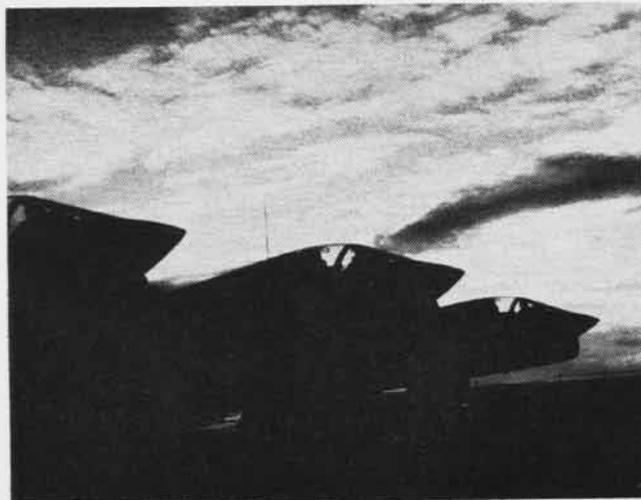
Another possibility—cleared with OPNAV Aviation Training Division—is for pilots to give their surface friends a personal copy. Squadrons may draw copies for this purpose from many major aeronautical publications distribution points on Form 140.

Aviation Training will not be able to fill requests for the manual from organizations outside of the Navy.

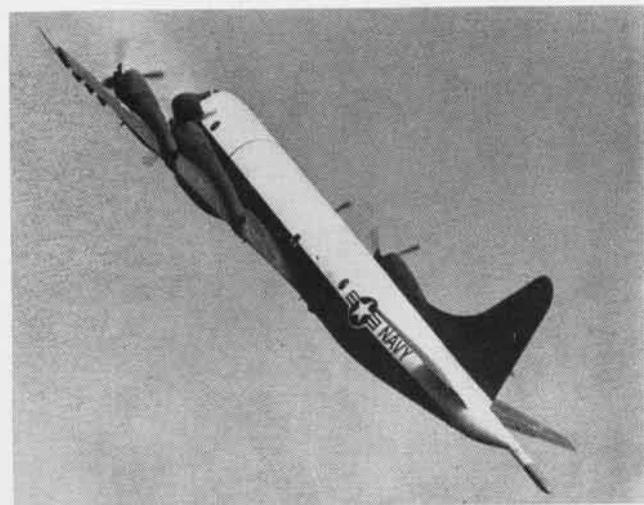
Air Traffic Group Moves From Quonset to Jax to S. Pole

The Navy's Special Mission Air Navigational Aid Unit has moved from NAS QUONSET POINT to NAS JACKSONVILLE and will deploy next September to New Zealand and the Antarctic continent for Operation *Deep Freeze*.

The unit is commanded by LCDr. James R. LaCroix and is responsible for controlling air traffic between Christchurch, N.Z., and the Antarctic.



SUPERSONIC SILHOUETTES at sunrise give wide-eyed, fish-like appearance to three F8U Crusader jet fighters poised on the deck of the USS Midway. The jets belong to Marine Fighter Squadron 232 of the Hawaii-based First Marine Brigade. The Marines rendezvoused with the attack carrier off Oahu for two days of carrier landing practice.



ORION COMING UP! This busky new ASW P3V-1 is due to become operational this summer. Most powerful submarine hunter in U.S. Naval Aviation history, its prime mission will be to seek out and sink enemy submarines. Carrying a 10-man crew at level-flight top speeds of 450 mph, they will first supplement, then replace, older P2V models.

J-52 Training has Started Two NAMT Groups in the Field

Two new Naval Air Maintenance Training Group Detachments to teach class "C" maintenance on the J-52 engines are in the field. Units at NAS OCEANA and NAS LEMOORE are scheduled to hold the first classes this month.

The NAMT detachments will teach fine points of J-52 maintenance, including assembly and disassembly, and component up-keep. The new Pratt & Whitney engine powers the A2F and A4D-5.

Addition of the two new J-52 units brings to 86 the number of NAMT detachments now in the field.

Army Award for Navy Man Honored for South Vietnam Work

Aviation Ordnanceman First Class Charles T. Strutton, USN, received the Army Commendation Medal in a ceremony held by his squadron's commanding officer, Cdr. J.T. Parady, C.O., Attack Squadron 112.

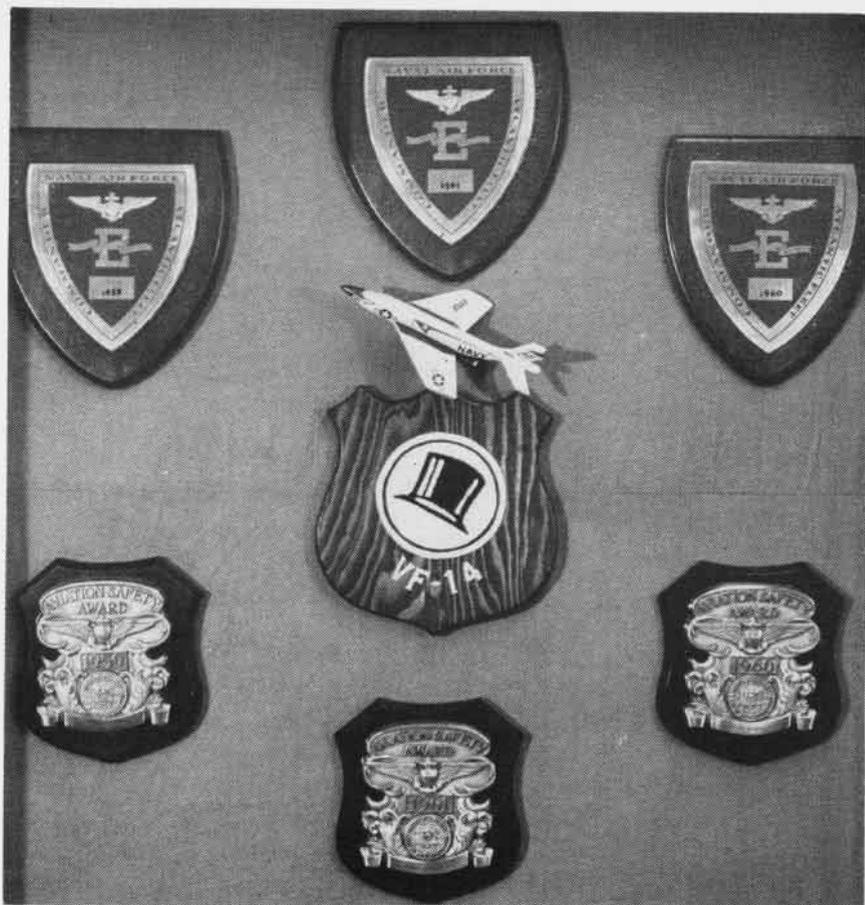
The presentation was made at NAS LEMOORE, Calif.

Strutton received the medal for his service with the U.S. Military Assistance Advisory Group (MAAG) in South Vietnam from August through December 1960. Strutton was weapons and ordnance instructor on the U.S. Navy AD-6 Mobile Training Team.

He was commended for his outstanding teaching abilities and for his development of loading techniques which reduced the turn-around time for combat missions. His leadership cut down the rash of difficulties in releasing stores of the aircraft. The citation pointed out that "as a result of his ingenuity and resourcefulness, the AD-6 was employed on actual combat operations against insurgent Communist pockets of resistance six weeks before the predicted dates."

T-39 Certified Airworthy FAA Gives Sabreliner Approval

North American Aviation's T-39 Sabreliner has been "certified airworthy" by the Federal Aviation Agency. FAA officials signed the type certificate for the twin-jet utility transport under Civil Air Regulations covering transport category airplanes weighing 12,500 pounds or more. The certificate is the same type issued jet



UNDERSTATED BUT IMPRESSIVE is this Fighter Squadron 14 display after three successive years as winner of the AirLant E and CNO Safety Awards. In the years 1959, 1960, and 1961, these hard-won marks of excellence spotlight the Topbatters as topnotchers in their role as interceptors and night fighters. Based at NAS Cecil Field, VF-14 pilots fly the F3H-2 Demons, armed with Sparrow III and Sidewinder missiles as well as 20-millimeter guns.

transports flown by commercial airlines.

The T-39A is the basic Air Force utility model. The U.S. Navy will use a modified version under the designation T3J. The first T3J is in production at North American's Los Angeles plant. It will be used as a radar/navigation trainer.

Capable of cruising at 45,000 feet at 436 knots, the T3J has a range in excess of 1500 nautical miles. Powered by two P&W J60-P-3 engines of 3000 pounds thrust each, the T3J can carry two instructors and three students.

White Flight Suits Slated Fleet to Test Fire-Resistant Gear

A few well dressed Naval Aviators will be wearing white late this summer. A new fire-resistant fabric, currently available only in white, is being used for experimental flight suits and G-suits. Several hundred of the new

suits will be distributed to Fleet squadrons for evaluation.

The new fabric, called HT-1, was developed by Du Pont Company primarily for such industrial uses as filter bags for blast furnace flues and conveyor belts for hot materials.

At room temperature, HT-1 has approximately the same properties as nylon. However, at nylon's melting point, HT-1 still has half its original strength. The fabric will not melt, but chars slowly at temperatures in the neighborhood of 750° F, according to information from Du Pont.

Production quantities of HT-1 will not be available until the new plant under construction at Richmond, Va., is completed late this year.

Since the fire-resistant qualities of HT-1 are inherent in the nature of the yarn, owners of flight suits made from the material will be free to wash them as often as they may desire.



VF-74 WAS FIRST OPERATIONAL SQUADRON TO RECEIVE RECORD-BREAKING F4H

TWO OF THE FREE WORLD'S fastest aircraft are flown by Fighter Squadrons bearing the number designation SEVENTY-FOUR. Discovery of this fact was made a few months ago by members of the U.S. Navy's VF-74, based at NAS OCEANA and equipped with the Mach 2 plus F4H-1 *Phantom II*. The other 74 is an operational unit of the Royal Air Force, flying the English Electric *Lightning*, Mk. 1 also a Mach 2 airplane.

In perusing a copy of the British trade magazine, *Acroplane*, a VF-74 officer noticed an RAF recruiting advertisement which featured the men and planes of "Trinidad Squadron," as No. 74 squadron is called. An inquiry to the British Air Ministry in London yielded the mailing address of No. 74, and soon an introductory letter was on its way to the RAF Station, Coltishall in Norwich, Norfolk County, England. The letter enclosed

By Ltjg. J. R. Allietta

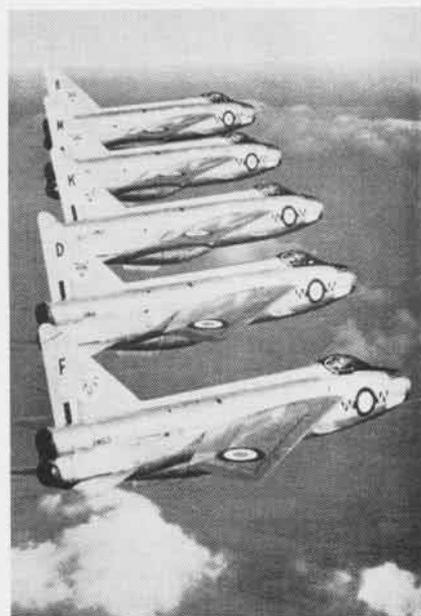
some information and photographs which would acquaint Trinidad Squadron with the *Be-Devilers*.

In reply, Trinidad Squadron sent VF-74 skipper, Cdr. Julian Lake, a squadron history, numerous photographs and publicity material of No. 74 Squadron.

The two squadrons have much in common in addition to their numerical designation. Both have recently completed the transition from transonic fighters (VF-74 from the Douglas F4D *Skyray* and Trinidad Squadron from the Hawker *Hunter*) to twin-engine airplanes capable of speeds over twice that of sound. The F4H incorporates a two-man crew as against the single-place *Skyray*, whereas the single-place *Lightning* was designed to replace the two-man *Javelin* (not flown by No. 74), an earlier RAF all-weather design.



THE NUMBER'S THE SAME



NO. 74 LIGHTNINGS AT FARNBOROUGH

Seventy-Four, the numerical designation for an RAF squadron and a U.S. Navy outfit, bear similar insignia that portray their role. Tiger or Satan, each is ready, equipped with two-engine Mach 2+ fighters, for aggressive action against any would-be adversary. To RAF No. 74 slogan, 'I fear no man,' VF-74 replies, 'Concur.'



THE TRINIDAD SQUADRON is an RAF organization and land-based in contrast to VF-74, the first U. S. Fleet operational squadron to receive F4H aircraft.

Coltishall, home base for the precision-flying *Lightning* outfit, was built in 1940 as a fighter base and completed just in time to support British fighters engaged in the Battle of Britain. During WW II years, Coltishall was the base for a great variety of fighter operations which included fighter sweeps, convoy patrols, anti-shipping escorts and antishipping reconnaissance, as well as night fighter interception patrols. By the end of the war, Coltishall-based squadrons claimed a total of 207 enemy aircraft downed. In recent years, the station has been home to squadrons flying two-seat *Venom*, *Vampire* and *Javelin* all-weather fighters. Squadron 74 moved to Coltishall in September 1959.

The English Electric *Lightning* is an impressive aircraft. Having been flown in experimental and test configurations for a number of years as the P1-B, the *Lightning* was assigned to Trinidad Squadron in the autumn of 1960. Since that time, No. 74 pilots have achieved such proficiency in the *Lightning* that they now rank as one of the British Commonwealth's top aerobatic exhibition teams—all this is in addition to being a combat-ready, all-weather fighter squadron. As a team they have flown at such events as the Paris Air Show and, of course, at Farnborough.

Powered by two Rolls-Royce *Avon* turbojets with "reheat," the *Lightning* is RAF's first truly supersonic aircraft. Like the F4H *Phantom*, the *Lightning* was developed from the beginning as an integrated weapons system, not merely as a fighter to carry guns and missiles. All its major components—

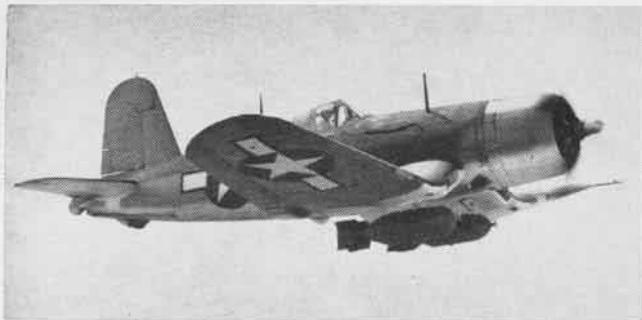
airframe, engines, armament, fire control, radar, auto-controls—have been carefully coordinated and "made to measure." Equipped for inflight refueling, the *Lightning* is the first British single-seat aircraft to carry such complex armament and equipment.

The *Lightning's* engines are placed one above the other on the center line of the fuselage. Because of their close spacing, the layout creates a deep keel which results in good stability throughout the flight envelope, unhampered by asymmetric thrust problems.

In contrast to the all-missile (*Sparrow III's* and *Sidewinders*) configuration of the *Phantom II*, the *Lightning* relies for its punch on two 30-mm cannon and two de Havilland *Firestreak* air-to-air missiles. The *Firestreak*, like the *Sidewinder*, is a heat-seeking weapon. Alternate configurations provide for gun/rocket or mis-



NO. 74 SQUADRON, FAMED FOR AEROBATICS, FLIES FORMATION AT AIRSHOW



BE-DEVILERS FLEW F4U AFTER WW II AND IN KOREAN CONFLICT



COUGARS WERE THIRD TYPE AIRCRAFT VF-74 FLEW IN ONE YEAR

sile/rocket arrangements as required.

In July 1957, a prototype *Lightning* was flown faster than the world speed record of that time, 1132 mph (Mach 1.73). A speed of Mach 2 was attained in January 1959. Commenting on its performance, the Commanding Officer of No. 74 has said, "We know we can catch the bombers, and going on past experience, we know we can outfight any fighter equivalent to the USAF Century series." (At least two planes of this series, the F-104 and F-106, are capable of Mach 2 flight.)

In jest in an early letter to the Navy squadron, Flight Lt. Martin Bee offered to arrange "a bit of mock aerial combat," should the *Be-Devilers* ever fly near Coltishall. There is more than a remote chance that this could occur some day, owing to the fact that U.S. carriers have had occasion to operate in the North Atlantic during deployments. Should such a "battle" ever come to pass, the outcome would prove interesting.

The F4H-1 *Phantom II*, built by the McDonnell Aircraft Corporation, was originally envisioned by its designers as the answer to the Navy's need for a fast attack fighter capable of delivering both nuclear and conventional weapons. Design philosophy was modified later, however, when it was decided that the wide range of capabilities which the *Phantom* possessed rendered it the ideal vehicle for an integral weapons system.

Since its introduction into the Fleet in early 1961, the F4H has racked up an impressive list of records, not the least of which is the speed mark for flight across the continental United States during Navy's project LANA, the 1961 Bendix Trophy event (NANEWS, July 1961). Recently the USAF chose the *Phantom II* for use as a tactical reconnaissance fighter which is to be designated the RF-110.



CDR. LAKE AND LT. E.A. COWART, HIS RIO

Not only do the two squadrons boast topnotch interceptor aircraft but proud histories as well. No. 74 Squadron has a much longer history than VF-74. The British squadron was formed in 1917 as a training unit of the Royal Flying Corps. Made a "service" squadron the following spring, the group was sent to France in 1918, and in April of that year, was credited

with its first five kills of enemy planes over the continent.

Inactive from June 1919, the "Tiger Squadron," as it was then known, was re-formed in September 1935. During WW II, 74 Squadron flew its *Spitfire* fighters in action against the German Luftwaffe and participated in the Dunkirk evacuation.

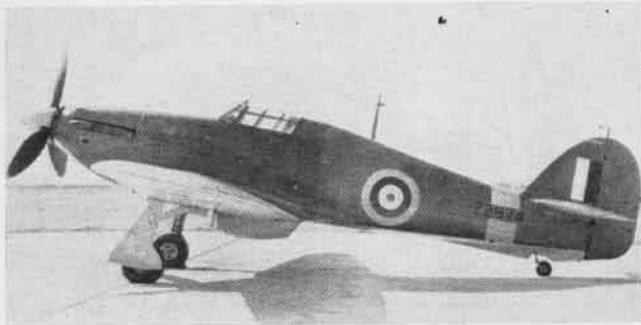
October 1942 found the unit equipped with Hawker *Hurricane* 12-gun fighters, operating in Persia and from Cyprus. During the latter part of the war, re-equipped with *Spitfires* for tactical bombing, No. 74 flew in action over Western Europe.

Shortly after WW II, Gloster *Meteor* twin-jet fighters were assigned No. 74 and were retained in advanced configurations until the arrival of Hawker *Hunter* single-seaters in 1957. The last of the *Hunter* Mk. 6's was exchanged in 1960 for the *Lightnings*.

Led by Squadron Leader F. G. Howe, the squadron's 16 pilots, whose average age is 26, all fly as team members on the aerobatic display team. The



VF-74 BE-DEVILERS FLEW THE DOUGLAS F4D SKYRAYS FROM MAY 1956 TO APRIL 1961



IN 1942 NO. 74 FLEW THE HURRICANE IN MISSIONS OVER PERSIA



THE BRITISH UNIT ALSO FLEW SPITFIRES DURING WORLD WAR II

squadron is famed for the precision with which it flies an unprecedented number of the sleek *Lightnings* in a variety of formations. The most impressive of these was featured on a recent cover of *Aviation Week*—a tight diamond formation with the aircraft banked 90°, wingtips nearly touching.

Having been equipped with the *Phantoms* since July 1961, NAS OCEANA'S VF-74 completed RCVG training in September, carrier qualifications in October and is currently assigned as a combat-ready operational squadron with CVG-8 aboard the USS *Forrestal*.

Cdr. Lake, VF-74 skipper, is a veteran fighter pilot with experience in flying more than 30 different types of Navy aircraft. He entered the Navy in 1942. He has, incidentally, flown every type of aircraft with which VF-74 has been equipped since its beginning. During an exchange tour with the USAF following participation in three major Korean campaigns, he flew in seven types of Air Force planes.



NO. 74 SKIPPER HOWE, PILOT P.J. PHILLIPS

With 32 flying officers and over 200 enlisted men, VF-74 is undoubtedly one of the largest Navy fighter squadrons ever to put to sea, according to the squadron skipper.

Although VF-74 has a shorter history than RAF's 74, the squadron is no less proud of it. Formed during WW II as VBF-20 it flew the Navy's F4U *Corsair*. During this time, the

nickname, the *Be-Devilers*, was adopted by the squadron.

As VF-10A and later as VF-92 the squadron was equipped with Grumman F8F *Bearcat* fighters for a brief period in 1948, but in the following year with its new designation, VF-74, it once again was assigned *Corsairs*. In one tour during the latter part of the Korean conflict, the squadron flew over 1500 close air support and RESCAP missions from the carrier, *Bon Homme Richard*.

Transitioning to F2H-3 *Banshees* in 1952, VF-74 changed its base of operations to Oceana, Va., and became a unit of CVG-6 in late 1954. A change to F9F-8 Grumman *Cougar* fighters followed, and the squadron made a Mediterranean cruise aboard the USS *Ticonderoga* in 1955.

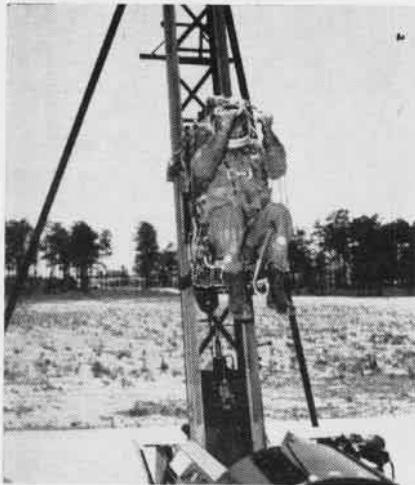
Since 1955, the *Be-Devilers* have operated from the carriers *Franklin D. Roosevelt*, *Lake Champlain* and *Intrepid*. On the most recent of three Sixth Fleet deployments aboard the *Intrepid*, the squadron distinguished itself by the introduction of a new method of aerial refueling of the F4D (NANews, May 1961). Participation in NATO and Sixth Fleet exercises highlighted the cruise, during which VF-74 flew a total of 2500 flight hours.

On April 26, 1961, nearly five years to the day since the first F4D had been received, the transitional training in the F4H was started, making VF-74 once again "first in the Fleet" with a front-line all-weather interceptor.

Cdr. Lake in a letter to No. 74 Squadron Leader Howe bestowed on him the title of "Honorary *Be-Deviler*, the highest honor which can be bestowed on any non-*Be-Deviler*." Cdr. Lake added, "My congratulations on your being appointed to that ancient and revered company of good rowdies." ★ ★ ★



ENGLISH ELECTRIC LIGHTNING IS POWERED BY TWO ROLLS ROYCE AVON TURBOJETES



BROGI DESCENDS FROM TRAINER SHOT

New Ejection Trainer Fired Used with Full Pressure Suit

The Navy's first ejection seat training device equipped for use with the full-pressure flight suit went into operation at NAS CECIL FIELD on April 19 when Ltjg. R. J. Datka of VFP-62 was shot aloft along the track in the device's Martin-Baker seat.

Ltjg. Datka was the first pilot to make the ascent in the trainer. Two days earlier, Robert O. Brogi, HM3, made the first shot at Cecil Field.

Brogi was shot up to a height of about ten feet along the vertical track that the Martin-Baker seat rides on. The gravitational pull on him after firing was six G's.

Cecil Field's Aviation Flight Physiological Training Unit, headed by LCdr. Paul W. Scrimshaw, will use the

ejection trainer as part of its full-pressure suit indoctrination program.

Three representatives from the Naval Training Devices Center in Port Washington, N.Y., were present to assist in the first firing.

One of the representatives, Mr. R. J. Usher, said that the ejection seat trainer can simulate all the operations that a pilot must carry out to eject from an F8U. Since the full-pressure suit requires a special ventilating system, oxygen-breathing attachments, communications hook-ups and a control system to pressurize the suit if a jet's cockpit pressure fails at high altitudes, the new ejection device incorporates all these systems.

NORAD's Enlisted Pilot Few Navy AP's Still Flying

There's a Navy chief petty officer at NORAD headquarters, Colorado Springs, Colo., with the designation of ADRC-AP.

Translated this means that CPO Robert H. Leymann is a senior chief aviation machinist's mate, reciprocating engines, and an aviation pilot.

Chief Leymann's actual job is that of pilot for RAdm. Thomas A. Ahroon, Commander of Naval Forces, CONAD. This makes him a member of a vanishing breed—a pilot who is not a commissioned officer.

There were 154 Navy AP's last year; now there are only 71. The Marine Corps, which has a similar rank, has 64 remaining. Retirement is rapid, and within ten years, there will be no more enlisted pilots in the Navy.



NEW HAT FOR A POET, America's Robert Frost sits on the bridge of USS Essex, dry-docked at N.Y. Naval Shipyard, Capt. G.S. Bogart at right. The poet, his grandchildren and great-grandchildren toured the CVS-9.

Night Targets are Ready Flashlights Dark-Adapt Del-Mar

North Island-based VU-7 claims to be able to provide all-weather fighter squadrons aerial target service for high altitude night air-to-air missile firing. The squadron states it achieved this capability by rigging a Del-Mar aerial target with night lights.

Two one-cell flashlights (GF6230-255-0166) were adapted to the mid-section of the target to make it visible to firing aircraft or any other planes which might chance to pass near it. These lights also help the pilot of the tow plane see the target during critical phases of initial launch and recovery.

Cdr. D. S. Bedsole, commanding officer of VU-7, tested the modified Del-Mar target by launching and recovering it from a Crusader at 40,000 feet.

Jax Jump Club Organized Fort Bragg Chutists Tutoring Tars

Fleet Air Jacksonville now has a Sport Parachute Club. The 35-member group was authorized by RAdm. Joseph M. Carson, ComFltAirJax.

Two instructors from VA-44, Lt. Floyd E. Sykes and Lt. James E. Bassett, head the group.

Eventually the club hopes to compete with other military and civilian organizations in the Jacksonville area.

The sport parachute enthusiasts are receiving "professional" instruction from two members of the 82nd Airborne Division at Fort Bragg, N. C.



A NEW ASSAULT support helicopter, turbine-powered with 1100 hp. is to be built for the Marine Corps by Textron's Bell Helicopter Co. Specifications include a payload of 800 lbs., 50 nautical miles radius of operation and a minimum cruising speed of 85 kts. Basically it will be the HU-1B Iroquois which set six world records in 1960. The helicopter will be used for observation target acquisition, reconnaissance, command control and casualty evacuation.

New Training Aid is Used Developed by Brunswick Personnel

A new test bench installation has been developed by Naval Air Maintenance Training Group, Detachment 1056 (P2V-5, -5F), located at NAS BRUNSWICK, Maine.

Clifford P. Nelson, ADRC, Carl Linza, AECS, and Roland D. Martin, AE1, have coupled a Sperry Airborne Engine Analyzer with a Greer Ignition Test Bench. The necessary parts were salvaged from stricken aircraft.

The new training aid is used to familiarize personnel with interpreting the troubles which the analyzer projects on its scope. In the new installation, ignition malfunctions of various types can be induced in the Greer Test Bench which functions as the engine ignition system. All types of analyzer patterns can be reproduced in the classroom to illustrate the conditions which maintenance personnel will encounter while actually using the airborne installation.

The combination unit can be used for other purposes as well as classroom instruction. In-service aircraft analyzer components which are suspected of being defective can be installed in the unit and tested.

VF-31 Passes Milestone 2500 Night Landings since 1957

Lt. W. L. Dwyer made the 2500th night landing of VF-31 since the squadron came aboard the USS *Saratoga* with their F3H *Demons* in 1957. Since it was also Lt. Dwyer's 100th night landing aboard the *Sara*, he became a member of a very exclusive club, the Black Knight Centurions.

The initial landings of VF-31 on the *Sara* were made in 1957 during a cruise observed by the President. In addition to three Mediterranean deployments, the squadron has participated in a number of Gitmo and Second Fleet exercises and a northern Atlantic NATO cruise. On the cruise, LCdr. T. R. O'Neil, squadron skipper, and Lt. Dwyer were the only VF-31 pilots to land aboard ship above the Arctic Circle.

The 2500 night landings are actually only those the *Tomcats* have piled up in the F3H *Demon*. Flying the F2H-3, VF-31 operated at night on other ships during other deployments, but records are not available to determine what the full total would be.



VIGILANTE BOOMS skyward from *Enterprise* as a second VAH-7 A3J waits to be called. Whether it be food cooked by atomic power, closed circuit TV, or sonic booms as A3J's fly by, things are very fast on the "Big E."

HS-1 Records a 'First' Makes Night Rescue in an HSS-2

Helicopter Anti-Submarine Squadron One, NAS KEY WEST, recorded its first night rescue with the Sikorsky HSS-2 helicopter in early April responding to a call from SubRon 12.

An HSS-2, piloted by Lt. W. R. Peters and Ltjg. C. M. Jewell, with W. C. Dawley, SOA2, and a corpsman aboard, sped five miles seaward to the SS *Harder* which had requested the assistance for a sailor with a reported 105° fever and another sailor going on emergency leave.

The pick-up was accomplished by using floodlights and a controllable spotlight from the submarine. A Stokes litter and a "horse collar" were lowered. The men were then flown back to Key West.

Total time from take-off to landing for the rescue was just 41 minutes.



LCDR. J.H. WYNN III of Attack Squadron 36 possibly has achieved a record of sorts. In three days in March, he logged his 400th carrier landing, his 300th aboard the USS *Saratoga*, and his 1000th hour in the A4D.

NIF for Noris Activity North Island O&R 'in Business'

"O&R NORTH ISLAND has gone in business for itself." This is not quite true, literally. However, a recent move, which placed the O&R on the Navy Industrial Fund (NIF), is designed to make activity managers think like private business men who are paying for man-hours and material out of their own profits.

Initial working capital for the huge industrial establishment, which employs 5739 civilians, is \$10,000,000. Under NIF the O&R will pay for its labor, material and other expenses out of the fund which must be replenished from charges to its customers for its products. The organization overhauls aircraft engines and components and performs Progressive Aircraft Rework and major repairs on Navy aircraft.

O&R NORTH ISLAND is the 65th naval activity to go on industrial funding. MSTs, shipyards, weapons plants and other activities use the NIF system which was authorized as far back as 1949.

RAF Visitors at Whidbey Tour Navy West Coast Stations

A Mark 3 *Shackleton* long-range, maritime patrol plane of the Royal Air Force visited NAS WHIDBEY in April while on a liaison tour of West Coast naval air stations for an exchange of ASW techniques. The tour was arranged by the United Kingdom Air Ministry and the U.S. Chief of Naval Operations.

RAF Patrol Squadron 120, based at Kinloss, Scotland, visited Naval Air Stations at San Diego, Alameda, and Barber's Point. The squadron is commanded by Wing Cdr. H. M. Carson.

In conjunction with this exchange-of-information program, detachments from U. S. East Coast patrol squadrons visit the Joint Anti-Submarine Warfare School at Londonderry, Northern Ireland. While there, these detachments take ASW courses with patrol squadrons from other NATO countries. Thus, each learns the techniques used by the other in anti-submarine warfare.

"This exchange of information is most valuable for our NATO defenses," said Squadron Leader Jack Fennel, Commanding Officer of the RAF Air-Sea Warfare Development Squadron, who accompanied the group.



TWO-WAY PRACTICE. Marine airmen and Navy crewmen receive training at both ends of the rescue hoist in waters off Cuba during six-week deployment for training of recalled VS-935.

Ditching Ends Smilingly

Nine members of a Memphis P2V crew came up smiling after receiving an unscheduled swim in the Gulf of Mexico near New Orleans. The *Nephtune* crew ditched at sea when an engine ignited during a rocket bombing run on a training mission. New Orleans helicopters picked up the men about one hour after the mishap. All crewmen escaped injury.

LCdr. Charles E. Davis, Jr., pilot, summed up the ditching operation by saying, "It couldn't have been done better."

Rescue operations were compounded when one of the helicopters sent to the scene was also forced to ditch. They, too, were plucked from the sea. One crewman of the P2V sustained an injury—after the rescue. He cut a finger on a knife while collapsing the rescue raft.

Landing Ship Dock Practice

Two unusual assignments made a two-week training tour interesting for

AUGUST RELEASE SET FOR RESERVES

ON APRIL 11 the President announced plans to release involuntarily recalled Naval Reserves in August 1962 "unless there is a serious deterioration in the international situation in the meantime." The planned release date is August 1 for approximately 8000 surface and air reserves recalled last fall.

Air squadrons whose homeports were changed incident to the recall will move back to their original sta-

tions four weeks prior to the release date. Ships in the same category will sail to arrive in their original homeports two weeks prior to the release date. One squadron, VP-661, will find a new home awaiting them. VP-661 was recalled from NAS ANACOSTIA, which was disestablished in the interim, and will set up Weekend Warrior headquarters at the Naval Air Reserve Training Unit, at Naval Air Facility, Andrews Air Force Base, Maryland.

members of HU-812, Minneapolis. Flying in support of the Coast Guard, HU-812 flew over the Norfolk, Va., area in protective missions during the launching of the FBM submarine, USS *Thomas Jefferson*. Later in the tour, the squadron landed aboard the USS *Asbland* (LSD-1) and permitted the ship's crew to qualify in aircraft handling drills. Take-offs and landings aboard the *Asbland* were part of the practical, thorough training given.



FATHER AND SON. John Robertshaw takes first step toward Marine commission. The oath was administered by General Robertshaw.



ONLY A FINGER BANDAGE. Crewman, 2nd from right, sustained finger cut in act of collapsing raft following crew's rescue in Gulf of Mexico.

Marines Talk Air Safety

Aviation Safety Officers from all detachments of the Marine Air Reserve Training Command held their first annual conference at NAS GLENVIEW in April. Purpose of the conference was to direct specific attention of all Marine Air Reserves to the annual summer maneuvers and to cover the general field of aviation safety. Specialists in air safety attended, offering safety procedures for the two new jets in the Marine program, the A4D and F4D. Recorded tapes of the two days of talks were made available to those attending the conference.

Navy Stays in his System

How long does the Navy "stay in your blood?" For Robert G. Baker, the answer is, "at least 16 years." Baker, owner of an automatic screw machine company in his hometown of Rossford, Mich., joined the Naval Air Reserve at Grosse Ile after almost 16 years of civilian pursuits following a stint in the Navy during WW II. He and his 17-year-old son, Robert H., were sworn into the reserve together by Capt. Arthur Schulz, Jr., C.O. of the Grosse Ile station. The senior Baker was rated an ADR1 and his son an airman recruit.

Accident-Free Training Unit

All ten operating squadrons attached to NARTU ANDREWS received CNAResTra accident-free safety certificates during the Washington unit's annual military inspection. RADM William I. Martin, CNAResTra, made the presentations to squadron commanders, including one to Cdr. Ralph



AIRMEN'S HOLIDAY. Five pilots from VA-879, Alameda, gather after flight at NAAS Fallon. All five are employed by United Air Lines but fly A4D's during weekend training periods.

Kauffman, C.O. of recalled VP-661, now attached to Patuxent River.

Dual Practice with Hoist

A six-week stint of training at Guantanamo Bay gave more than 50 members of VS-935, NAS WILLOW GROVE, a chance to practice live hoist operations with a Marine helicopter squadron. The recalled ASW squadron spent part of its Gitmo training period on individual hoist practice with HMS-263's detachment at the Cuba naval air station. Marine pilots received training in conducting the hoist at the same time the recalled reserve pilots and crew members had

a chance for realistic water recovery training. In addition, the two squadrons collaborated on fabricating a sling for recovery of practice torpedoes.

New Marine Robertshaw

BGen. L. B. Robertshaw, Commander of Marine Air Reserve Training, administered the oath of office to his son, John "Chad" Robertshaw, who is now on the way to joining his father as a Marine officer. The younger Robertshaw joined the Platoon Leaders Class program, which will permit him to receive summer training leading to a commission. John will enter college this coming fall.



LANDINGS ON AN LSD. Minneapolis helicopters nestle on the deck of USS Asbland during drills which train the ship's aircraft handlers.



ALL SQUADRONS PERFECT. Ten squadron C.O.'s line up to get awards for accident-free operations from RADM. Martin at NARTU Andrews.

'SINS' TO SOLVE CV POSIT PROBLEM

THANKS TO THE A3J *Vigilante*, the "state of the art" of shipboard navigation may be in for a quantum jump.

The *Vigilante* is equipped with an advanced navigation system which is a cut-down version of Ships Inertial Navigation System (SINS) developed for fleet ballistic missile submarines.

Through a kind of super dead reckoning process, this system keeps constant track of a plane's position. Without inputs from compass or air speed, the sensitive inertial system detects the plane's true position. Thus the resulting position is free of errors arising from variation, compass deviation or wind effect.

In order to be able to keep track of the plane's true position, the system must know where the aircraft was at the start of the mission. It also requires highly accurate reference information for leveling the gyros and aligning them in relation to true north.

A carrier, to support the A3J properly and other aircraft such as A2F and W2F which will also have inertial navigators, must be able to supply the required super-accurate inputs.

In order to see what usable information is already available aboard carriers, Project TILT was established early in 1960 under the Navy Avionics Facility, Indianapolis. As part of this project a trailer van load of gear, in-

cluding two A3J inertial navigation systems, was carried to sea aboard carriers five different times.

An interesting sidelight of TILT was the confirmation of what many carrier pilots had long suspected: carriers often do not know their precise position. These position errors can be traced directly to limitations in the various shipboard navigation systems.

It was found that while the pit log speed was highly accurate for *speed through the water*, there was no practical way for the ship to make accurate allowances for current. Also, the DRT (Dead Reckoning Tracer)—a device which maintains an automatic DR position based on heading inputs from the ship's gyro-compass and speed inputs from the pit log—could not detect the skidding of the ship on turns or side drift from wind.

Two approaches are being evaluated to provide carriers with the capability of supplying the navigation inputs. One solution involves installation of a SINS unit similar to those on the FBM submarines. The other approach—a much less expensive one if it works—involves modification of the Mk. 19 ship's gyrocompass to enable it to serve the same functions.

Both systems were slated for installation in *Enterprise* (CVAN-65) late in April while in her builder's yard for post-shakedown availability. She

also was to be fitted with a system to pipe the information to conveniently located deck-edge outlets. These outlets will be located so that navigation information can be fed into an aircraft inertial navigator just before the plane taxis up to the cats.

When *Enterprise* next goes to sea, the modified Mk. 19 ship's gyro-compass outputs will be checked against SINS' information. Results of this evaluation will influence choice of the system for future carrier installations.

Discovered Points Named Polar Features Honor VX-6 Men

A new supplement to the list of authorized names in Antarctica honors 11 former members of Air Development Squadron Six. The names were adopted by the U.S. Board on Geographic Names and the Secretary of the Interior. This brings to 44 the total number of former VX-6 officers and men whose names will appear on official maps of the continent.

First VX-6 name to appear on the new list memorializes Nelson R. Cole, AD2, who was killed in a helicopter crash at McMurdo Sound during the winter period of operation *Deep Freeze II* (1957).

Pilots formerly assigned to the squadron and honored in the new list include LCdr. Roy E. Curtis, LCdr. Earl D. Dryfoose, Jr., LCdr. Willard J. Franke, LCdr. Ray E. Hall, 1st Lt. Leroy S. Kenney, USMC, Cdr. Manson Krebs, Lt. Harvey G. Speed, LCdr. James E. Waldron, and LCdr. Frank Wasko.

Capt. William H. Munson, USN (Ret.), was also honored by the Board in the new list. He commanded the squadron during Operations *Deep Freeze 60* and *61*.

The features and their coordinates are:

Cole, Mount	84° 41' S, 176° 57' W
Curtis Peaks	84 53 S 169 08 W
Dryfoose, Mount	84 50 S 170 20 W
Franke, Mount	84 37 S 176 58 W
Hall, Mount	84 56 S 170 23 W
Kenney, Mount	84 43 S 175 28 W
Krebs, Mount	84 53 S 170 45 W
Munson, Mount	84 49 S 174 40 W
Speed, Mount	84 32 S 177 05 W
Waldron Spurs	84 34 S 175 40 W
Wasko, Mount	84 34 S 177 02 W

In the September 1961 issue of *NANEWS*, another list of honored VX-6 officers and men was published.



POOPY SUITS replaced Bikinis in the bay along the French Riviera when VF-32 hosted an exposure suit swim party to test the suits. Pilots from VF-32, VF-31 and VA-36 climbed into one of the USS *Saratoga's* utility boats and rode out for a dip in chilly waters. After a few minutes, HU-2 helicopters plucked them from the water. Back on the *Sara*, parachute riggers helped the pilots out of the suits and then checked the suits carefully for possible leaks.

Utah U Reports FIP Rise Middle Flight Enthusiasm Mounts

University of Utah NROTC Unit reports rising interest in aviation as a result of the FIP (Flight Indoctrination Program). Applications for the program, which leads to a private pilot's license, are up 225%. Not only has the popularity of the program increased, but according to the report, the enthusiasm of the flying seniors has rubbed off on lower classmen who are waiting their opportunity to apply for training.

The FIP program has two objectives: increase the number of NROTC students going into Naval Aviation, and provide a low-cost means of gauging students' aptitude and their desire to embark upon a naval flying career.



'DID I MAKE IT?' This seems to be standard question for USS Lake Champlain (CVS-39) "Rate Crushers" checking the result sheets to see if they made the grade on recent fleet-wide examinations for petty officers.

Ordnance Course Opened Offers Management for New LDO's

An Aviation Ordnance Officers Management Course was opened recently at NATTU JACKSONVILLE, Fla.

The course is designed primarily to provide small groups of newly commissioned Limited Duty Officers, LDO (T) (6700), with the knowledge and techniques they will need for effective performance as ordnance officers.

The four-week course covers ordnance publications, other technical matters and division officer duties.



USS ENTERPRISE Air Group Commander's mount now—and then. Cdr. George Talley's Crusader, poised for a cat shot during the first carrier air group operations on the Big E, makes a dramatic contrast with CAG's Curtiss SBC-4 of the old Enterprise, circa 1940. While monoplane carrier types had entered carrier service in the late Thirties, the SBC-4 divebomber represented the latest in biplane design of the period. With its 950-hp Wright Cyclone engine, it reached a speed of nearly 240 mph. The F8U Crusader is more than four times as fast.

Enlisted Woman Retires Chief Metras Finishes 20 at NAS

Twenty years ago Barbara Flaherty joined the Navy. She was placed in charge of 72 other young women on a train trip from Boston to the University of Indiana where the group received Navy indoctrination.

In the war months that followed, patriotic women joined the WAVES, the Army's WAC, the Air Force's WAF, and the Coast Guard's SPAR (*Semper Paratus, Always Ready*).

Last April, at NAS NORTH ISLAND, Barbara Flaherty Metras, SKC, became the first enlisted woman of the U.S. Armed Forces to complete twenty years military service.

In the intervening years, she served at Squantum, Mass., the Frontier Base in East Boston, Norfolk, Rhode Island and Pearl Harbor. In 1952, she married CWO George H. Metras, USN.

One of the highlights of her career came in 1946 when she captained a WAVE pistol team which defeated all competition, including not only the Boston Police Force but also a top-

notch contingent of recognized British pistol experts.

At monthly personnel inspection, April 6, Chief Metras was paid tribute by Capt. W.M. Collins, commanding NAS NORTH ISLAND. Days later, she transferred to the Fleet Reserve and now leads what will soon be a long list of retired enlisted women.

Two weeks after Chief Metras completed active service, NAS PENSACOLA's Pre-Flight School conducted special ceremonies honoring the retirement of CPO R.D. Roche, second enlisted WAVE to join the Fleet Reserve.

Record Safe Hours Flown 25,000 Accident-Free Hrs. Logged

P2V Neptunes of VP-6 logged in 25,000 accident-free flying hours. Based at MCAS IWAKUNI, it took the squadron three years and ten months to compile the new mark.

VP-6 is one of four Navy Patrol units attached to Task Force 72, U.S. Taiwan Patrol Force. Cdr. Edward F. Leonard, VP-6 Commanding Officer, says "VP-6 is airborne even when the seagulls won't leave the seawall."



NESTLED in a corner of the vast climatic hangar at Eglin AF Base is this WF-2 Tracer as it went through climate qualifications in 1950's.



DUCTING CARRIES the jet exhaust from the twin T-58's of this HSS-2 out of the hangar as starting and other tests are run at -70 degrees.

WEATHER FACTORY IN THE SUN

P EOPLE GO to Florida for lots of reasons—usually the sun. But it's the need for a dependable source of arctic weather which brings a small group of Navy men to the "Sunshine State."

This group—two officers and 19 enlisted men—is a detachment of the Service Test Division of the Naval Air Test Center, Patuxent River, Md., assigned to the Climatic Laboratory at Eglin AF Base, Florida.

This truly cosmopolitan facility tests all types of equipment for all the U.S. armed forces and for our allies as well. In its time, the lab has tested items ranging from a MiG-15 to a mule.

Since an F4U-5, F8F-2 and AD-2 were given the deep freeze treatment back in 1949, 35 different Navy aircraft have been climate-tested.

The main facility is a hangar large enough to test 20 or more aircraft at one time as well as odds and ends, such as missiles and survival equipment. The hangar measures 200 by 250 feet and has 70 feet of overhead clearance.

It is said that a "trainload" of insulation went into the construction of the climatic hangar. The front of it is formed by two railroad track-mounted doors weighing 100 tons each.

Enough refrigeration capacity to air-condition a tract of 6000 houses in the Florida sun will take the temperature inside the hangar from plus 70° F. to 50° below zero F. in less than ten hours, and take it on down to -70° F. in another 8 hours or less.

A wind machine, powered by a 250-hp motor, can provide a blast of

*By LCDr. John M. Wolff
OinC, Navy Det., Eglin AFB*

100 mph. Other facilities simulate rain up to a torrential 15 inches per hour.

In addition to the main climatic hangar, specialized test rooms reproduce conditions of searing desert heat, steaming jungle humidity or the frigid fringes of space.

Running the climatic tests on an aircraft requires extensive preparation. When an aircraft is received by the Service Test detachment for evaluation, the various systems are instrumented to measure temperatures, pressures, flow rates, etc. It is then tied to the hangar floor, and ducts carry



SURVIVAL training at -70° F. is conducted a few feet from bright Florida sunshine.

its exhaust gasses out of the hangar.

The first test run of the series is made at a controlled 70° F. After the plane's "normal" operation has been established, tests are repeated at various temperatures ranging from -65° F. to +105° F. A test cycle for a batch of planes takes three months.

Before the climatic hangar was built, climatic testing was done where the severe weather conditions occurred naturally, in such locations as Northern Alaska or the California desert.

This procedure was both slow and expensive. Mother Nature could not always be relied on to produce the right kind of weather to meet the convenience of the test program.

The testing program and the climatic hangar grew out of the lessons of WW II and was completed in 1947.

In its 15-year history, the laboratory has facilitated the testing of over 200 aircraft—Air Force, Navy, Army, Allied and captured—as well as over 1200 items of other equipment, ranging from Army trucks to intercontinental ballistic missiles.

The mule mentioned earlier was brought to the lab's pressure chamber for an evaluation of an oxygen mask designed for air-lifting animals. One recent project found the lab testing antennas for *Polaris* submarines by running them up and down through 32° F. water into the frigid air.

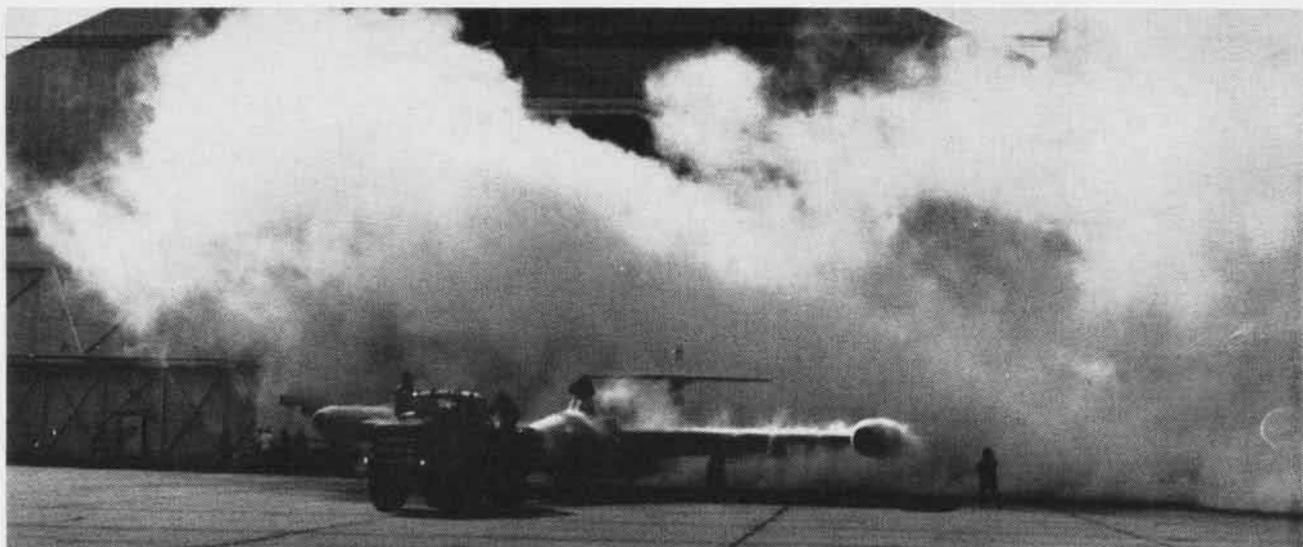
The Climatic Laboratory is proving to be a great asset in the struggle to field reliable fighting equipment—weapons which will work when they are needed anywhere in any weather.



NATO STRIKE fighter, Fiat G-91, undergoing climate testing in mid-1961. Changes based on tests will be incorporated in production models.

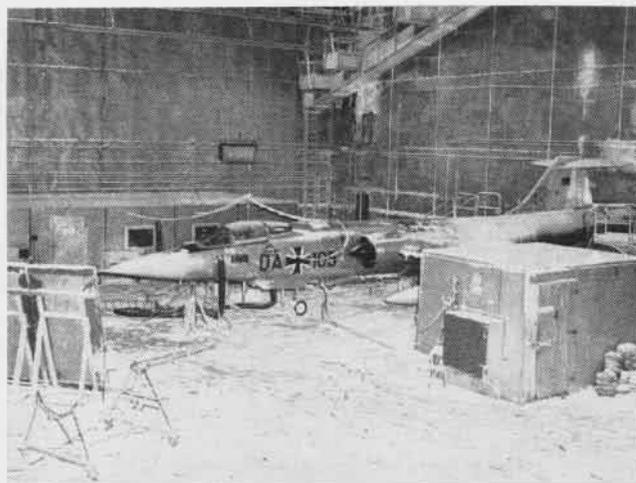


RECOGNIZE this one? MiG-15 was evaluated for Russian capabilities and progress in all-weather environments. Plane captured in Korea.

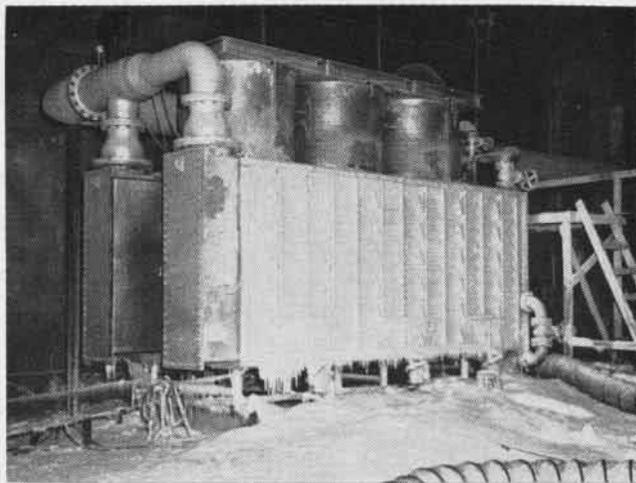


COLD-SOAKED for 72 hours at minus 65° F., this F-89 was towed into sunshine and started. It climbed to 30,000 feet for armament system

tests. Climate testing not only helps correct design deficiencies, but also develops best operating procedures for extreme weather conditions.



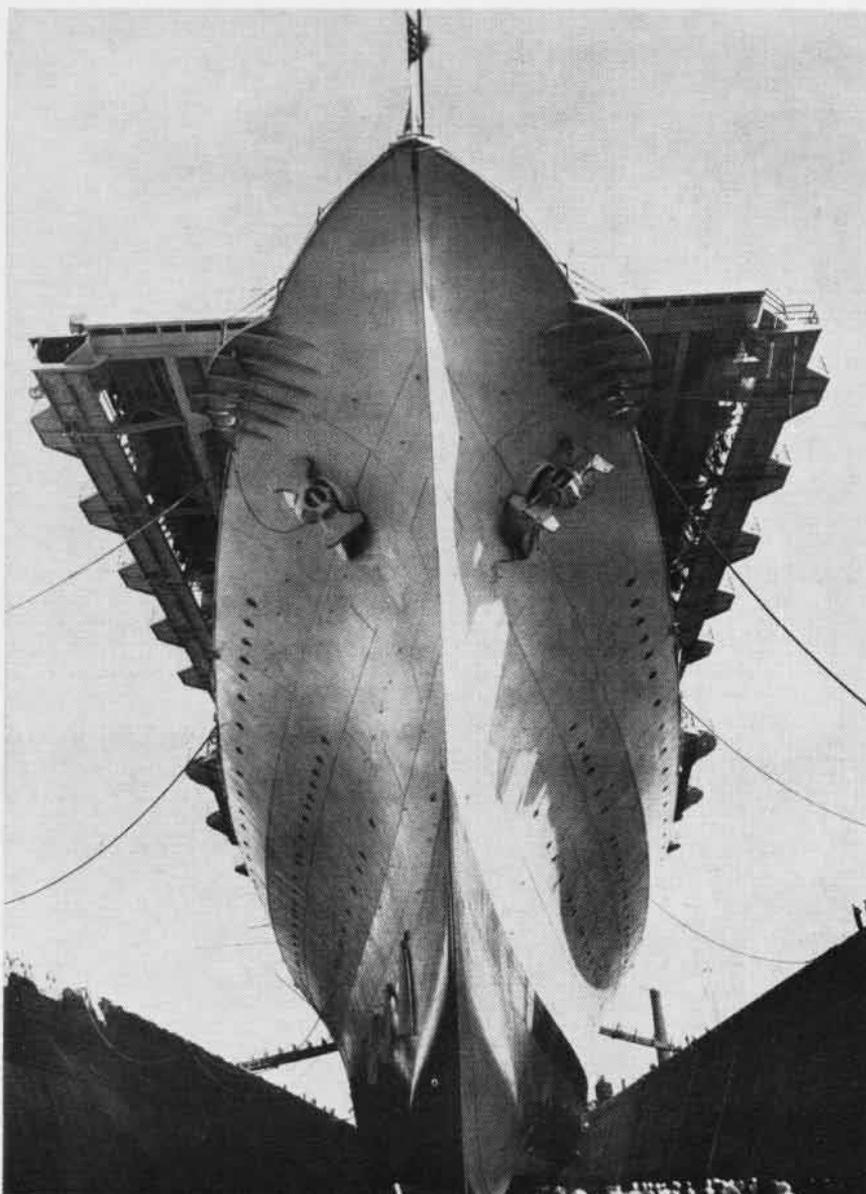
GERMAN CF-104 Starfighter was tested in the same batch with the Fiat G-91. Climatic hangar will hold over 20 aircraft for one test cycle.



ATOMIC POWER PLANT steam condensers for PM-1 reactor system were tested at Eglin. Over 1200 pieces of equipment have been tested.

CARRIERS FROM THE KEEL

'Such remarks as I may have to make as to the nature and extent of the air force required by the Navy will be based upon the assumption that the airplane is now a major force, and is becoming daily more efficient and its weapons more deadly, . . . that therefore even a small, high-speed carrier alone can destroy or disable a battleship alone, that a fleet whose carriers give it command of the air over the enemy fleet can defeat the latter, that the fast carrier is the capital ship of the future. Based upon these assumptions, it is evident that our policy in regard to the Navy air force should be command of the air over the fleet of any possible enemy.'—Adm. William S. Sims, USN, October 14, 1925



USS RANGER (CV-4) is viewed in March 1937. Commissioned in June 1934, she was the U.S. Navy's first aircraft carrier built from the keel up. Four more were built before World War II.

PLENIPOTENTIARIES of the United States, the British Empire, France, Italy and Japan met in Washington in the early Twenties to reach an agreement on the limitation of naval armament. The treaty they signed on February 6, 1922 had a profound effect on the evolution of aircraft carriers. From the time the U.S. Navy first embarked upon a carrier-building program, it was faced with tonnage limitations established by this treaty.

The total tonnage for aircraft carriers of each of the contracting powers permitted the U.S. and Great Britain 135,000 tons each, France and Italy 60,000 tons each, and Japan 81,000 tons. Of its allotted tonnage, the United States had already consumed 66,000 in the *Lexington* and *Saratoga*. Only 69,000 tons remained for future construction. The Navy gave much thought and study to the means of best utilizing this remainder, and, in 1927, when drawing up a five-year shipbuilding program, the General Board recommended construction of a 13,800-ton carrier each year.

The program involving this plan was promptly submitted to the President who approved it on December 31, 1927. It was subsequently submitted to Congress which, by act of February 13, 1929, authorized construction of one 13,800-ton carrier. The Navy attempted in the following years to obtain authorization for construction of the visualized sister ships, but without success. Indeed, before another carrier was to be authorized, the Navy had become more interested in larger ships of about 20,000 tons.

In addition to the legal reasons which led the Navy to seek a 13,800-ton carrier, there was a body of thinking on the part of some Naval Avia-



OPERATING WITH THE FLEET, USS *Ranger* had a 14,500-ton displacement. Unusual features were bow arresting gear, small island, stacks at stern. On deck are parked Vought scout bombers, Grumman fighters, Martin dive bombers in 1937 view. Capt. A.L. Bristol was first C.O.

tors which recognized the utility of small carriers. This was evident as early as 1925 when the General Board briefly considered but rejected the conversion of 10,000-ton cruisers to light carriers.

Two years later, LCdr. Bruce G. Leighton, then aide to the Secretary of the Navy, prepared a study on possible uses of small carriers. In addition to protection of the battle line, he suggested their suitability for anti-submarine warfare, reconnaissance, and reduction of enemy shore bases.

At about the same time, RAdm. William A. Moffett argued that British and Japanese experience with small carriers had made it clear that such ships could keep more aircraft in operation than could an equal tonnage devoted to larger ships.

Fleet commanders, who might be expected to have had a more conservative view of the military utility of aircraft than did Moffett and Leighton, expounded concepts that provided further justification for smaller carriers.

For example, the Commander in Chief, U.S. Fleet, noted in his 1927 annual report that the Fleet was seriously handicapped by the absence of a carrier with the battle line upon which spotting planes could land. Thus, both the aviation protagonists and the surface commanders recognized the need for carriers which would perform important roles, even if they were not of a size approaching that of the giants, USS *Lexington* and USS *Saratoga*.

Such considerations were in the genesis of CV-4. When it came to reducing them to detailed plans for

construction of a new ship, very little had been done. Studies made in 1923 and 1924 had been concerned with island-type vessels, such as the *Lexington* and *Saratoga*, and were not directly applicable to a new design—which was to be of the flush-deck variety. In addition, the basic concept for CV-4 was embodied in the General Board recommendations of 1927 and predated the commissioning of *Lex* and *Sara*. Hence, the concept could not incorporate any lessons learned



TWO-SEATER Vought O3U-3 Corsairs, such as the one above, operated from USS *Ranger*.



FIRST LANDING on CV-4 was made June '34 by I.Cdr. A.C. Davis; H.E. Wallace, ACMM.

during their early fleet operations.

This concept, as outlined by the General Board, included a speed of 29.4 knots, a clear flying deck, 12 five-inch anti-aircraft guns and as many machine guns as possible. On July 26, 1928, BUAER elaborated on this proposed design in a letter to Commander Aircraft Squadrons, Battle Fleet. The flight deck was to be about 86 feet by 750 feet and fitted with arresting gear. The navigating and signal bridge were to be under the flight deck, well forward, with extensions beyond the ship's side, port and starboard.

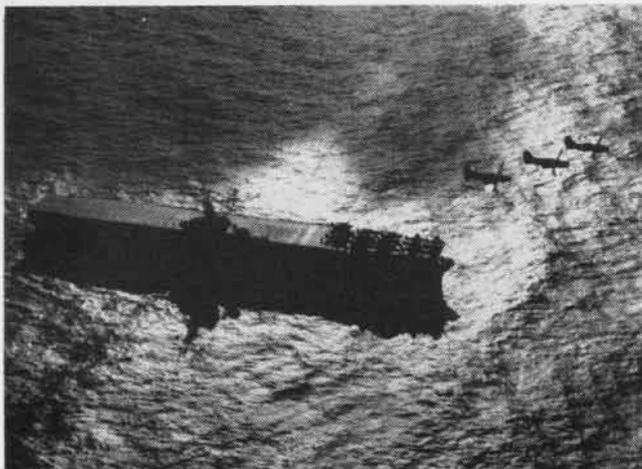
As for the anti-aircraft battery, it had been reduced to eight 5-inch 25-caliber guns located two on each quarter. Anti-aircraft battery directors were to be provided, but BUAER thought that range finders should be omitted.

Secondary conning stations were to be located on the starboard side of the upper deck and combined with the aviation control station. A plotting station consisting of flag plot and aviation intelligence office was also to be provided.

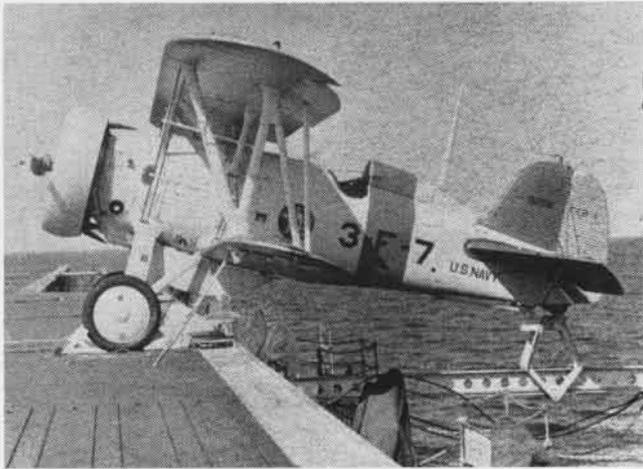
Despite the fact that the general concept could not benefit from experiences of the *Lexington* and *Saratoga*, the two ships did comment on plans for the *Ranger* on the basis of such experience as they had obtained during the first year's operation.

For example, they felt that both elevators and shop provisions should receive special consideration above and beyond that which had already been given.

"Experience during the present con-



CURTISS HELLDIVERS fly over the USS Ranger during WW II. Spotted on the deck forward are Vought Corsairs and Grumman Hellcats.



OUTRIGGER PARKING, here on the USS Ranger's starboard side, supported a Boeing F4B-4 in August 1934. This system saved deck space.

centration on both carriers has emphasized the importance of the after elevator in addition to the two now contemplated (for CV-4)," wrote *Saratoga's* commanding officer.

"There is required a great deal of re-spotting of planes in flight operations, and an after elevator will considerably expedite this process. After planes have landed on deck, it is sometimes necessary to send below a plane from the after part of the flight deck, which is now difficult with the flight deck filled with planes and the elevators forward."

OFFICERS ABOARD both *Lex* and *Sara* held informal conferences, the results of which were passed to BUAER. Speed was most desirable in aircraft carriers, but speed also had its drawbacks, as these officers were quick to point out to their superiors.

"The location of the A&R and general work shops aft is decidedly undesirable," BUAER informed the Bureau of Construction and Repair, "and it is strongly recommended that they be relocated further forward, if there is any possible way of doing so. Experience on CV-2 and CV-3 has shown that it is impossible to do any work requiring precision or accuracy, such as cutting a thread, when the ship is steaming at about 22 knots or more."

Early in the planning stage, BUAER encountered head-on the problem of lighting and night landings. A memorandum written for BUAER files pointed out: "The primary difficulty involved in night operations for airplane carriers is the provision of ade-

quate illumination to enable the pilots to make safe landings and at the same time to enable the ship to maintain darkened ship conditions that will prevent disclosure of the carrier's provision to surface craft and enemy aircraft. . . . The technical difficulties in this project are so great that complete success can scarcely be hoped for for several years and then not without the expenditure of much more time and effort than appears desirable at present.

"Night flying experiments were conducted on the *Langley* to determine the type of illuminating equipment for the *Saratoga* and *Lexington*. Although the number of landings made were not very great, enough information was obtained to determine upon equipment that would at least provide for a point of departure for future experiments in an effort to further solve the basic problem. No carrier night flying has been conducted since 1925." The memorandum was dated June 14, 1929.

This sparked an intensive series of experiments which caused the introduction of several lighting systems aboard various carriers. At best, most of these provided safe illumination for night landing but were less successful in maintaining darkened ship. Incandescent lights of low wattage were tested in various arrangements and intensities. Neon tubes were tried, some colored green, red, blue or amber. Of these, plain white was considered the best—but was not a solution. Even luminous paint was investigated. The problem of night deck illumination

was to plague Navy for years to come.

How the problem was handled in *USS Ranger* is indicated by a November 1934 report her commanding officer made to BUAER:

"In anything but bright moonlight when the ship's outline can be made out at a reasonable approach distance, it is very difficult, definitely too difficult, to get in the groove when only landing deck lights are used. Although Ranger's landing deck lights extend the length of the ship and are well lined up on each side, which it was hoped would improve the difficulty described by Saratoga and Lexington pilots, the pilot is frequently too near the ship before he can find out which way to swerve. If he happens to hit the groove early, he is well fixed. If he doesn't, he sees a jumble of landing deck lights and can only guess whether to change course to right or to left.

"With ramp lights turned on in addition to the landing deck lights, there is unanimous agreement that getting in the groove is very easy. Exactly why this is true is not clear, but the string of lights across the ramp appears not only definitely to locate the end of the deck, but also to give the pilot sufficient basis for setting his course normal to the lights and up to the centerline of the deck.

"Atheartship landing deck lights at bow and stern are no use and would be hazardous if opened when planes are landing. (Confusion in getting in the groove existed whether or not these lights were opened, worse when opened.)"

Other problems were of concern to BUAER during the design stage of CV-4. Relatively minor, but illustrative of the care devoted to carrier de-

sign, was the question of paint color for interior surfaces. A flurry of correspondence between BUAER and BuC&R concerned the color of paint to use on the deck, overhead, and bulkheads of the hangar.

This was not so much a problem of habitability as it was one of weight limitation and maximum reflective power. White paint, light gray and aluminum were considered. Misinformation supplied the Bureau of Engineering caused it to advocate light gray, but BUAER objected. Tests were conducted and aluminum proved lighter and more reflective of the three paints considered.

Finally, in early December 1929, plans for CV-4 received approval. Copies were sent to the Fleet, noting that major changes could not be made in them, but that the Bureau would "be glad to have comment or suggestion with regard to minor points, should such comment appear desirable."

By February 1930, active work on the design of the 13,800-ton carrier had stopped. Shortly after British Prime Minister Mr. MacDonald visited the United States, the President gave instructions to suspend all work on this ship, pending the outcome of the then projected London conference on naval armament. Months went by, the President was consulted again, and again the Navy was told to do nothing about the ship until the treaty had been ratified.

The treaty was signed in London on April 22, 1930. Ratification of the treaty was advised by the Senate on July 21, 1930, and by the President on the following day.

In the meantime, the Navy Depart-

ment, Office of the Judge Advocate General, drafted an advertisement which was published when the ratification restriction was lifted. The advertisement invited bids for the construction of CV-4. The bids were opened September 3—and proved to be "bombs."

All bids submitted far exceeded the appropriation given the Navy for construction of the ship, the lowest bid (by Newport News Shipbuilding and Dry Dock Co.) exceeding the limit by an estimated \$2,160,000.

The four Navy Department bureaus involved in the construction plans—BuC&R, BUAER, BUORD, BUENG—forwarded a joint memorandum to the Secretary of the Navy requesting a 60-day extension of the period before execution of the contract in order to consider necessary changes in characteristics which would permit construction of the carrier within the cost of the lowest bid.

Permission was obtained and the various departments reviewed their requirements. Panels of officer-experts in each were formed to submit recommendations. Out went consideration of an extra elevator. Out went the possibility—at this time—of moving the shops forward, as *Sara* and *Lex* had suggested. Submitting its list of recommended savings, BUAER listed the elimination of catapults, smokestacks on one side, sliding doors for the hangars, securing tracks, and airplane booms and nets, and requested that necessary eliminations be made in that order.

"This bureau feels," wrote Cdr. R. K. Turner for BUAER, "that elimination or reduction in the balance of items considered, namely, arresting

gear, elevators, or gasoline capacity would seriously affect the characteristics of the ship as an aircraft carrier, and, therefore, urgently recommends against any sacrifice in these items."

By October 2, the Bureaus had signed another joint letter, addressed to the General Board, listing their recommendations on how to cope with the problem of the elimination of design features. Among other things, *Ranger's* fire control was to be simplified, ammunition storage space was to be reduced, bombing planes were to be substituted for torpedo planes (this eliminated the purchase of torpedoes), deck catapults were to go by the boards, as were plane booms and nets. Twenty percent of the flight deck securing tracks were to be eliminated, as well as housing palisades, and the voice tube system. Finally, the arresting gear system was to be reduced. On November 1, 1930, the contract was signed by Newport News.

Throughout official correspondence, the 13,800-ton carrier was referred to simply as CV-4. On December 10, 1930, the Bureau of Navigation informed a long list of addressees that "The Secretary of the Navy has assigned the name *Ranger* to Aircraft Carrier No. 4, authorized by Act of Congress dated February 13, 1929. The assignment of the name *Ranger* is in accordance with the Department's policy of giving names formerly assigned to those battle cruisers scrapped by terms of the Washington Treaty."

On September 26, 1931, *Ranger's* keel was laid. Seventeen months later, the ship was launched, and on June 4, 1934, she was commissioned. Though planned originally as a 13,800-



USS YORKTOWN (CV-5) was launched in April 1936 and commissioned in September 1937. The 19,800-ton aircraft carrier operated in

both the Atlantic and Pacific before WW II, participating in Fleet problems and training activities. First C.O. was Capt. E.D. McWhorter.



USS ENTERPRISE (CV-6) was commissioned in May 1938, a sister ship to the *Yorktown*. "The Big E" was to become a popular ship. Capt. N.H. White, Jr., was her first commander.

ton aircraft carrier, she exceeded this tonnage by 700 tons. Original plans also called for a severe flush deck, but, upon commissioning, she had a small island.

USS *Ranger* had eight 5-inch 25-caliber AA guns, other AA guns in gallery. She could operate 75 aircraft and had a complement of 1788, of whom 162 were commissioned officers. Her aircraft consisted of four squadrons of bombers and fighters and a few amphibians. CV-4 also was equipped with a box arresting gear—a feature included in other fast carriers until early 1943.

The General Board had become con-

vinced—even before the *Ranger* was launched—that the minimum effective size of aircraft carriers was 20,000 tons. A request for two of these heavier ships was made in the Building Program for 1934, which was issued in September 1932. In May the following year, the Board again submitted this recommendation. As a result, the Secretary of the Navy asked the President for Public Works Administration funds to build two carriers of this tonnage, in addition to other ships. USS *Yorktown* (CV-5) and USS *Enterprise* (CV-6) were authorized.

Files of the Bureau of Aeronautics

housed in the National Archives reveal a memorandum dated May 15, 1931, which was to affect the two new carriers:

"The Department has approved a new building program with two aircraft carriers similar to the Ranger, but before embarking on this new construction, it is suggested that a careful examination may show many design changes are desirable.

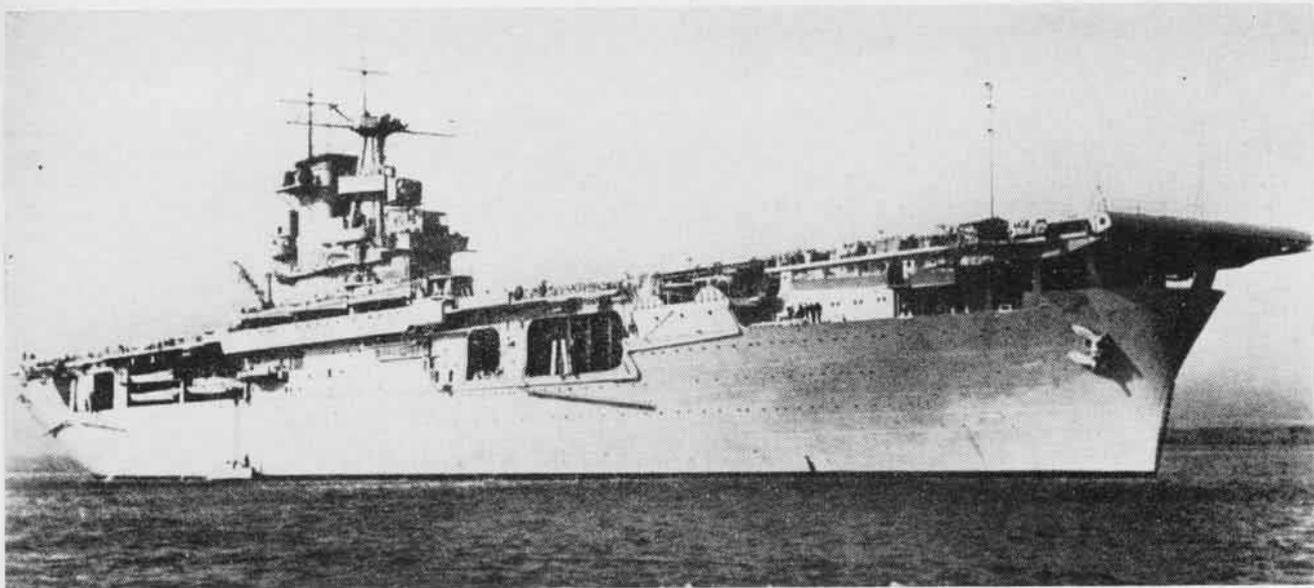
"The particular improvements in the Ranger design that should be considered are: speed increase to 32.5 knots; addition of underwater subdivision to resist torpedo and bomb explosions; horizontal protective deck over machinery magazines, and aircraft fuel tanks; improvement in operational facility (this includes hangar deck devoted exclusively to plane stowage, four fast elevators, complete bomb handling facilities, possible use of two flying-off decks, and improved machine gun anti-aircraft defense)."

The *Yorktown* was launched April 4, 1936, sponsored by Mrs. Franklin D. Roosevelt. When the carrier was commissioned September 30, 1937, her over-all length was 827 feet, four inches; extreme beam was 95 feet, four inches; and standard displacement, 19,800 tons. Her trial speed was 33.6 knots.

USS *Enterprise* (CV-6) was the seventh Navy ship to bear this name. Her keel was laid July 16, 1934 and she was launched October 3, 1936, sponsored by Mrs. Claude A. Swanson, wife of the Secretary of the Navy. She was placed in commission at Norfolk on May 12, 1938. Her specifications were similar to *Yorktown's*. She had accommodations for 82 ship's company officers and 1447 enlisted men.

As soon as CV-5 and CV-6 were authorized, the General Board did not request additional carriers of such tonnage. It did, however, vainly plead for a 15,200-ton replacement for the obsolete *Langley*. The *Langley* had been classed as an experimental ship and did not figure in the U.S. Navy's aircraft carrier tonnage limitations. To replace her with another carrier would have been to violate the treaty. The Navy did plan, however, to request new aircraft carriers when the *Lexington* and *Saratoga* reached retirement age.

Tightening of world tensions in 1938 caused the Navy Department to reconsider its carrier-building program,



USS WASP (CV-7) was launched in April 1939 and commissioned in April the following year. She displaced 14,700 tons, this weight restricted by the tonnage remaining from the limitation of the 1922 naval armament treaty. First skipper was Capt. J.W. Reeves, Jr.

and USS *Hornet* (CV-8) was authorized on May 17 that year. She was launched December 14, 1940 and commissioned October 21, 1941, with Capt. Marc A. Mitscher, her first commanding officer.

USS *Wasp* (CV-7) had been ordered earlier, on March 27, 1934. Her keel was laid April 1, 1936, she was launched April 4, 1939, and commissioned April 25, 1940. This carrier had to be built within what was left of the 135,000-ton limit set by the treaty. She was commissioned at 14,700 tons. Thus there were left only a few hundred tons remaining of the treaty-authorized carrier strength.

Already in the mill, during construction of *Yorktown* and *Enterprise*, were plans for a new class of aircraft carrier, the first of which would be known as USS *Essex* (CV-9).

War clouds were gathering over Europe and the Pacific. Fleet exercises and war games were stepped up as international tensions mounted. The treaties of 1922 and 1930 terminated December 31, 1936 when Japan abrogated.

In its provisions for Naval Aviation, the Naval Expansion Act of May 17, 1938 authorized an increase in total tonnage of under-age naval vessels amounting to 40,000 tons for aircraft

carriers, and also authorized the President to increase the number of naval aircraft to "not less than" 3000. Carriers built as a result of this authorization were the *Hornet* and *Essex*.

On September 8, 1939, President Roosevelt proclaimed the existence of a limited national emergency and directed measures for strengthening national defenses within the limits of peacetime authorization. In May 1941, an unlimited national emergency was declared. Seven months later Japanese aircraft, launched from carriers, attacked Pearl Harbor, and within 24 hours, the President went before Congress and the nation was at war.



USS HORNET (CV-8) was authorized in 1938 when world tensions mounted, launched in December 1940, commissioned in October 1941.



SISTER SHIP to *Yorktown* and *Enterprise*, *Hornet* had a standard displacement of 19,800 tons. First C.O. was Capt. Marc A. Mitscher.

MEMPHIS MEET ON TECHNICAL TRAINING

NAVY MEMPHIS was the scene of some heavy headwork as nearly 200 naval officers and civilians assembled at the 11th Annual General Aviation Technical Training Conference (GATTC), April 24-26. The three-day meeting dealt with the training and utilization of Navy technicians.

Coming to Memphis from all over the U.S., from the Atlantic and Pacific Fleets as well as Hawaii and Newfoundland, the delegates sat in seven different committees to work on more than 100 agenda items.

Three flag officers addressed the delegates in their opening session. First was RAdm. Joseph C. "Jumpin' Joe" Clifton, Chief of Naval Air Technical Training, with headquarters at NAS MEMPHIS.

As he welcomed the delegates, Adm. Clifton stressed the principle that a conference must keep itself open to all ideas, not just those of the majority: "Constructive criticism is invited in all committee deliberations. Your attention is invited to the fact that any minority dissent should be included as a part of the discussion of the agenda item. . . .

"In my opinion, a conference as important as this one simply verifies the fact that this country was founded as a result of free discussion, and that the Constitution was the result of painful and exhaustive debate. . . . Every effort has been made to utilize this conference as a sounding board of opinion and facts and to provide an opportunity for the representatives of all activities to voice their sincere convictions."

VAdm. Fitzhugh Lee, Chief of Naval Air Training, next addressed the GATTC. "Whether we like it or not," Adm. Lee told the delegates, "cost is the common denominator for every item on the agenda, and cost-consciousness will be the first yardstick against which our work here will be measured. . . . Appreciable economies . . . can be realized in training if we can focus enough talented attention on the areas of indirect and hidden costs."

He sighted possibilities of reducing hidden costs by better assignment and utilization of trained personnel, consolidation of related training, leveling



RADM. CLIFTON URGES FRANK DISCUSSION

of student load at schools, and exploiting the full potential of synthetic training devices. "If we can save one hour of training in the F4H, the A3D or any similar expensive operational weapon system by the use of one or several hours in a synthetic device, we have reduced one hidden cost."

Seemingly insignificant improvements became major economy items, Adm. Lee pointed out, when multiplied by the nearly 78,000 officers and men processed yearly in the Naval Air Technical Training Command.

RAdm. Frank A. Brandley, representing the Chief of Naval Operations and VAdm. Robert B. Pirie, DCNO (Air), was third flag officer to address the conference. He pointed out that the success of current and planned aircraft weapons systems, "complex beyond the wildest dreams" of a few years ago, depend on increased effectiveness of training and utilizing trained personnel.

"The improvement of all leadership, personnel management and training is a challenge to all of us," RAdm. Brandley said. "Within the next few months you will all be very familiar with the phrase 'minimizing operating costs.' . . . Sitting in Washington and seeing what's happening to the budget I can assure that . . . all feasible economies of training pipeline time should be effected, together with such actions as will increase the efficiency of the training establishment." (See "Naval Aviation and Program Packages," December 1961 issue of *Naval Aviation News*, pages 14-15.)

Conference panels studied multiple recommendations on ways to get more from the approximately \$100 million the Navy spends each year on training technicians. There were recommendations for improving the choice of subjects taught; for keeping the graduates on the jobs for which they were trained; and for making better use of their skills on those jobs.

Some specific recommendation submitted to the GATTC for consideration were:

- Emphasize principles of managing people, facilities and materials in all officer and senior petty officer training courses.

- Establish a two-week management course for maintenance officers.

- Include 40 hours of personnel management and work methods in all officer and class "B" Schools.

- Establish an Aviation Maintenance Administration rating. It was argued that if such personnel were available the technicians now doing the work would be free to work in the area of their technical training.

Another persistent theme of many recommendations reflected the increasing emphasis on quality control in Naval Aviation. Inclusion of quality control in all "B" school curriculums, and establishment of a blocked quality control course for officers were recommended.

Many agenda items dealt with the trend toward more and more electronics in aviation. "System" training for leading avionics maintenance petty officers going to squadrons with such complex types as the W2F and A2F was recommended. Nowadays, an electronics technician understands the electronics components of a system, while the hydraulics technician understands the hydraulic components. The "systems" approach will acquaint both men with the interdependence of both.

On the basis of the recommendations, the delegates apparently followed Adm. Clifton's advice and were not restrained in their comments.

In his brief remarks at the close of the meeting, RAdm. Clifton commended the delegates for the sound "homework" they had obviously done before coming to the GATTC.



LINE CHIEF COLE GIVES EACH MAN HIS ASSIGNMENT FOR THE DAY



AIRMAN CHAPMAN SIGNALS PILOT 'AUXILIARY POWER AVAILABLE'

PROGRESS ON THE LINE AT NAS MEMPHIS

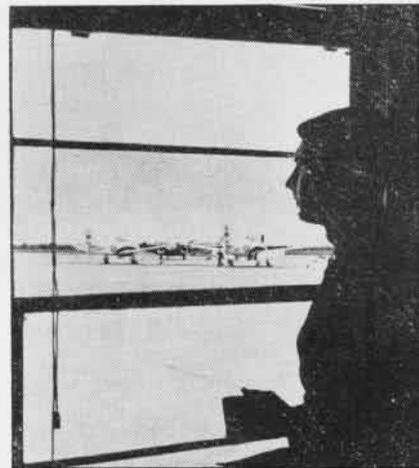
FOR THE YOUNG Airman Apprentice, assignment to an air station flight line can, at worst, mean a period of stagnation, futility and boredom, interspersed with intervals of frantic effort. At best, it can mean laying a solid foundation for a successful career in Naval Aviation, plus the satisfaction of doing an important job well. NAS MEMPHIS aims to make service on its line the latter kind of experience.

Check-outs, lectures and planned sequence of new tasks keep a man "growing" for his full tour on the station flight line.

After mastering the fundamentals—fueling, towing, aircraft tiedown,

hand signals, etc.—the man is apprenticed to a petty officer in charge of one type aircraft to master the art of being a fully qualified plane captain. After passing the examination on one aircraft model, he starts on another until eventually he may achieve the distinction of qualification on all six models aboard. The highest level of training finds the men understudying the line's trouble shooters.

Flight time in his own aircraft is included to give the man a feel for what the pilot encounters in flight. This flying is said to give the new plane captain a deep appreciation of the importance of his contribution.



O-IN-C OF LINE LOOKS OVER HIS DOMAIN



VALANIA, AD3, PREPARES SNB FOR FLIGHT



OPERATION OF ALL 'YELLOW EQUIPMENT' IS VERY IMPORTANT PART OF QUALIFICATION

LETTERS

SIRS:

In the January 1962 issue of *NANews*, an article entitled "Where Stands the LSO?" appeared. To several statements made by the author, Cdr. P.M. Harbaugh, and in the editor's note, the pilots and LSO's of VS-32 with paddles in hand take violent exception. Our LSO's windblown platform and hideaway net are NOT gone. His paddles are in constant



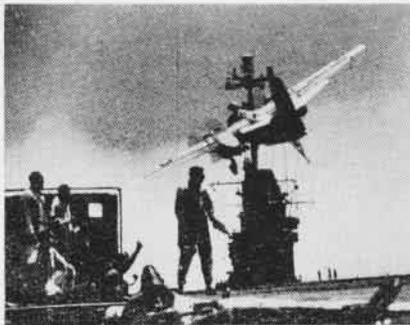
CVS-39 LSO'S ARE PROUD OF THEIR RECORD

use, and a "meatball" and "mirror" are things the pilots and LSO's read about but have not used for nearly three years. Our "home away from home" is the USS *Lake Champlain* (CVS-39), the last active axial deck carrier supporting fixed wing aircraft in the U.S. Navy.

The only meatball a VS-32 pilot sees is the one occasionally flying from the signal yards; the only mirror is the one he shaves with every morning; and the only angles he deals with are angles of attack, angles of bank, or an occasional angled approach. As Cdr. Harbaugh so dramatically points out, the aviators of VS-32 and the rest of CVSG-54 are truly the last of a breed.

Outstanding is the correct description of the accomplishment of VS-32 and our sister squadron VS-22. Since our initial deployment aboard the *Champ* in October 1959, the combined squadrons have amassed a total of 30,000 flight hours and 10,500 carrier landings, 5000 of them at night. This record is marred by only one S2F carrier accident which resulted in no injuries and a limited amount of damage. This gives us an accident rate of .95 as against the all-Navy axial-deck rate of nearly 6.0.

Both these figures are based on 10,000 landings. Perhaps the total number of landings appears small in comparison with other squadrons, but remember that all these landings are arrested—no touch-and-go, no bolters. The 5000 night landings are even more meaningful when you consider that, in transitioning from a CCA to a paddles approach, it is often impossible to distinguish LSO signals until ¼ mile out on the final. This necessitates a fine degree of precision and teamwork on the part of the pilot and the LSO. In extremely bad weather, it is necessary to "talk" the pilot aboard, much the same as on



CHAMPLAIN LSO GIVES S2F A WAVE-OFF

the mirror, because the pilot simply cannot see the LSO well enough to distinguish signals.

The pilots of VS-32 are firmly convinced that our LSO's are the best in either fleet. While "mirror gazers" may rely on the pilot to maintain his unvarying airspeed and coordinate power and rate of descent in order to fly his own aircraft to the deck, the paddles LSO must know how each pilot will react to each signal. The LSO must also control speed much more closely. He must satisfy himself that the pilot will be in the ideal position at the "cut."

Now we have arrived at the point of separating the men from the boys. If the pilot is a little high, just a tad fast and is cut just a bit late, the ultimate result could be a "fence." (This unfamiliar term describes the ever-present barriers.) Our pilots and LSO's have no crutches to aid in putting the plane on deck other than the LSO himself. This multi-million dollar responsibility is accepted by our LSO's only after a long period of training, approximately one year.

Most of the pilots and one of our LSO's have been mirror-qualified on the angled deck, and could handle such an assignment now if called on to do so. Perhaps we alone can boast that we are ready to go anywhere in the world under any conditions on any U.S. Navy carrier. We are members of the the only air group in the United States Navy that is currently qualified to land aboard a straight-decked carrier.

Finally, it is difficult to imagine a pilot remarking, in this day of AN/SPN-12 radar, mirrors and angled decks, that he prefers a paddles approach to a mirror approach, but that is exactly the sentiment echoed by the pilots with experience on both. Both pilots and LSO's are sure that anyone who has not landed an aircraft on a straight-deck carrier under paddles control has not yet felt the ultimate thrill in aviation.

P.W. GARD, LTJG,
PIO OFFICER

SIRS:

The article, "Decisions Out of Jutland," appearing in *NANews*, March 1962, contains a number of inaccuracies which detract from the author's generally high caliber of research and historical review.

The paragraph discussing the German

forces on the China Station implies that Adm. Graf Spee led this force of eight cruisers toward South America, adding two more cruisers at Easter Island. In actuality, he arrived at Coronel and the Falklands with five, not ten, cruisers. The famous *Emden* was one of the cruisers which sailed under separate orders.

The statement concerning the Battle of the Falkland Islands, "The British squadron came upon him (Graf Spee) unexpectedly," is completely erroneous. The British ships were in harbor coaling and did not even have steam up. The German ships sighted them and fled. Three hours later, the British ships gave chase and only after several hours opened fire.

The construction of Lord Fisher's "Hush! Hush!" ships, *Courageous*, *Glorious* and *Furious*, was independent of any episode concerning aircraft, contrary to the author's statement. They were very fast shallow-draft ships intended to operate in the Baltic against German land forces, not against ships.

In the discussion of the Battle of Jutland, the author relates that when "Jellicoe made a thrust to cut off Scheer's retreat, the German admiral ordered his ships first south and then east. By this maneuver, he came up to pursuit along the flank of the British ships, turned again and launched torpedoes, forcing Jellicoe to retreat." This description is similar to Mark Twain's description of a fight which he lost: "Forcing my nose firmly between his teeth, I threw him to the ground on top of me." In actuality, Scheer had taken his fleet into the most horrible and potentially catastrophic situation possible, placing his ships so that the British Fleet crossed his "T." He hastily retreated, reformed, and then shortly repeated this blunder, taking such a fearful beating that he ordered his battle cruisers and destroyers on the famous suicidal "Death Ride" to save his battleships and then desperately headed for home.

Only the excessively cautious tactics by the "bellicose" Jellicoe prevented a British victory greater than Trafalgar.

In an article concerning naval aircraft, it is surprising to find that the author has made no mention of Scheer's Zeppelins which flew over the battle of Jutland and saw nothing.

The statement that HMS *Eagle* was the only carrier with two funnels is probably true, but why show a picture of it with only one funnel?

EUGENE H. HANDLER, BUWEPES

SIRS:

Reference the April 1962 *Naval Aviation News*, and Gramps, question on what to do about wheels up landings in the HSS-2:

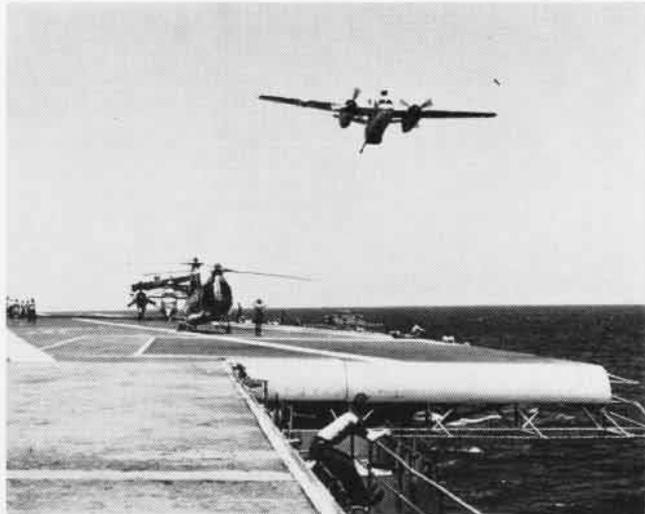
Put an elongated spike, rigged so that it shoves up into the pilot seat as the HSS-2 settles on the ground with wheels up.

This may not cure all wheels up landings, but I believe it will establish a limit of one per pilot.

NON-HELO PILOT



TRACKER RETURNS AFTER SCOURING THE STEAMING SEA FOR SUBS



VS-34 52F, MAD BOOM AND RADOME EXTENDED, MAKES FLY-BY



SQUADRON INSIGNIA

The 'Proud Tigers' of VS-34 have worked fast and well in building reputation. Commissioned only in May of 1960, the squadron passed its 10,000th safe flight hour last December and had flown safely through the first quarter of calendar 1962. VS-34's trophies now include the ComNavAir-Lant Battle E and the Capt. Arnold J. Isbell ASW Award.



'HAPPY TIGER' MUNCHES FAVORITE FOOD



STOOF DRIVERS FIND TIME BETWEEN EXERCISES TO STAY SHARP IN FORMATION FLYING



NO RUTS IN THE SKY

Whether he's punching Mach 2 holes in the atmosphere . . . or chasing electronic indications of submarines . . . or traversing the oceans daily in a transport, today's Naval Airman will find no ruts in the sky. For service in today's Air Navy is ever challenging, never static. The great joy that accompanies accomplishment starts when one pins on the Wings of Naval Aviator or Naval Observer. Can you (your brother or your son) qualify? Write NAVIATOR, Glenview, Illinois.



NAVAL AVIATION
NEWS