NAVAL AVIATION NEWS

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NAVAL AVIATION NEWS

FIFTY-SEVENTH YEAR OF PUBLICATION

COVERS — *George Carroll, whose feature on Macon appears in this issue, filmed the airship looming over a mooring mast at Sunnyvale, Calif., in 1933, front. Carroll also recorded the back cover view of Macon's port keel walkway and duralumin girder framework. Spheres are gas cells. Quilt-like material is part of helium storage cell. Here, PH1 Duncan Campbell captured a VA-205 Skyhawk trapping aboard Sara during carquals (pp. 26-27).*

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editor's corner

Hold that tiger. Johnny McCants was a lieutenant flying PB2Y-3s during WW II in the Pacific when he achieved what might be called a "first" and, to our knowledge, a "last" at one and the same time. Naval Aviation Pilot #1 Kiddy Karr sent us the story.

McCants, Admiral Halsey's pilot, and his crew were at Ulithi Island in 1944. Their flying boat, tied to a buoy, was anchored near a tender and some other small ships. The men were resting aboard the seaplane tender as a storm was brewing. Toward midnight on October 2, surging waves of water were cresting over the plane. The towing pennant was under severe stress. McCants surmised that if the pennant were pulled out it would leave a hole in the hull and the plane would sink. To relieve the stress he and his crew manned their *Coronado,* started the outboard engines and began a battle with the elements which lasted for *42* hours.

As a high wave approached, McCants would rev up the engines to combat the drag of the wave over the hull. At the crest of the wave he would reduce power and coast down into the trough. An unmanned PBY nearby sank in the typhoon and other smaller ships were lost or damaged. Near the end of the second day, the storm abated. McCants and his men, totally exhausted and suffering from exposure, were able to unmoor and taxi to another ship and secure the plane.

Commander Third Fleet sent McCants a message: "You are as good a seaman as you are a flier. Well done."

The PB2Y's outboard props had been bent during the fight and it sustained other damage. Repairs were made and the *Coronado* was flown for five months before it was returned to San Diego for overhaul. There, McCants was told that, because of the violent flexing of the wings in the storm, the bolt holes and fittings had been critically elongated where the wings were attached to the hull.

Kiddy Karr puts it best, the McCants team had "come in on a wing and a prayer."

Get the message? USS *Enterprise's* communications department passed a milestone last spring and celebrated same with a cake-cutting ceremony. The *Big E's* communicators had processed the 200,000th teletype message since the ship began her last overseas deployment in the fall of 1974.

From the animal world. A 15-foot sonar test tank, used for cooling radar, was installed at NARF North Island in 1962. Over the years, heavy algae built up in the tank causing a cleaning problem. NARF's Cliff Carter, now retired, solved it. He placed two different breeds of goldfish in the tank. The fish multiplied and the algae eventually disappeared. The large amount of oxygen in the water caused the fish to grow to an abnormally large size.

That was about ten years ago. Today, the goldfish weigh in at nearly three pounds. NARF employee Glen Stockdill is their caretaker and he feeds them a daily diet of trout chow, donated by employees in his section.

Someday we'll have the goldfish version of *Jaws.*

Ancient Albatross. That's him, RAdm. Chester A. Richmond, Jr., in long leather coat, scarf and goggles, with Port Angeles and Seattle-based officers in front of vintage N3N. Adm. Richmond has been a designated aviator longer than any other active duty pilot in the U.S. Coast Guard.

Superstitions

Naval Aviation News is trying to compile a notebook on superstitions as they relate to the flying Navy. We would like to do a story about them. Some years back, for example, it was unforgivable to launder a pilot's white scarf. One flyer nearly divorced his wife after she unknowingly put her hubby's status symbol through the Maytag.

There's the story of the squadron which had black luck with its airplane, side number 14. Seems old #14 crashed twice within a short period of time. Didn't make any difference who was flying it. The C.O. ordered the numbers taken off the plane. Nevertheless it crashed again. Investigation revealed that when the digits of the aircraft's bureau number were totaled they added up to – you guessed it – 14!

Please send your superstitions to Editor, Naval Aviation News, Room 1132, 801 N. Randolph St., Arlington, Va. 22203.

By the way, why do Naval Aviators kick the tire before lighting the fire?

did you know?

New ADCNO (Air Warfare) Prior to relieving Rear Admiral J. S. Christiansen as Assistant Deputy Chief of Naval Operations (Air Warfare) on July 19, Rear Admiral Carl J. Seiberlich received the 1975 Admiral Towers Memorial Award for distinguished service, at the Naval Aviation Commandery's annual spring banquet in Manhattan.

RAdm. Seiberlich is only the eighth man in 20 years to win the silver plate which is dedicated to Admiral John Henry Towers, Naval Aviator #3, who devoted his life to Naval Aviation. Adm. Towers died in 1955.

More than 50 retired and reserve Naval Aviators attended the dinner affair to honor the distinguished helo, blimp and fixed-wing pilot.

Robert Mulholland, executive vice president of NBC News, and veteran correspondent Robert Hager were featured in an after-dinner panel discussion.

VRAS A new Navy system will allow pilots or crewmen to give a verbal command and get answers from their computer without turning a knob or flipping a switch. Altitude, speed or direction can be had just for the asking.

"It's the most natural interface between man and machine," says Commander Robert Wherry, head of the Human Factors Engineering Division at the Naval Air Development Center, Warminster, Pa.

"It's more natural than displays," says Cdr. Wherry, and the computer can answer an unconditional command like, "Report altitude," or a conditional command like, "If altitude is less than 100 feet, report altitude."

Since no two people have the same speech pattern, the machine is adjusted after each user with an individual speaker equivalent vocabulary tape. If the new voice recognition and synthesis (VRAS) system received two similar commands with different wording, the computer would still interpret both commands in an identical way – to allow for what Cdr. Wherry calls "flexible syntax and semantics."

Bomarc B Tests The coordination and cooperation of five commands – the Pacific Missile Test Center, Test and Evaluation Squadron Four, the Space and Missile Test Center at Vandenburg Air Force Base, USS *Norton Sound* and the Navy Ship Weapons Systems Engineering Station – resulted in a Test Center "first" when a CQM-10B (*Bomarc B)* target was presented successfully to three independent target users. The *Bomarc,* undergoing target test and evaluation, is the Navy's only full-size, high-altitude, high-speed missile target.

For the first time at Point Mugu, the *Bomarc* performed inflight altitude transition from low-cruise to high-cruise altitude. This maneuver allowed the satisfactory presentation of the *Bomarc* to three users: PMTC's AIM 7F Active Fuse Program, VX-4's AIM 7F OpEval and NSWES *Aegis* Standard Missile Program.

Oblique Wing Concept

The NASA Flight Research Center has awarded a contract to LTV Aerospace Corporation to study the oblique wing concept using an F-8.

The oblique wing concept involves mounting a straight wing on the top of an aircraft so it can be swiveled around a central pivot. The wing would be fixed perpendicular to the fuselage for landing and takeoff, then moved to various sweep positions at different speeds.

This preliminary study will investigate modification problems and project a cost estimate. Wind tunnel studies at NASA's Ames Research Center, Mountain View, Calif., indicate the new design will increase speed efficiency and fuel savings. The F-8 was also used in the supercritical wing studies.

Fiber Optic Communications

A naval officer with a Ph.D. in physics, a Distinguished Flying Cross and 14 Air Medals for his 130 combat missions in Vietnam, received a patent award for his "fiber optic communications systems coupling device."

LCdr. Lorin W. Brown designed the coupler to extract light from a data transmission line composed of optical fibers which inject light into the line for communication.

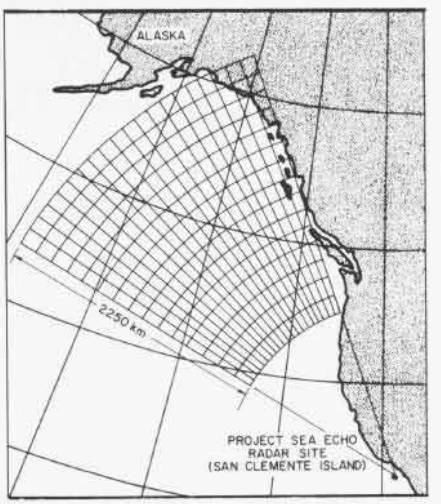
Optical scientists at the Naval Research Laboratory, Washington, D.C., say the invention is important because it is easy to fabricate and provides "low loss input and output access to a fiber optic bundle transmission line."

Sea Echo

If the present year-long tests of a specially designed sky-wave radar are successful, the over-the-horizon system (*Sea Echo*) could speed transoceanic cruises and save tens of millions of dollars each year.

For the first time, scientists will be able to monitor wave and sea conditions on a regularly scheduled basis by remotely sensing sea state, out to 2,000 nautical miles, with the only high-frequency radar designed expressly for this purpose.

Sea Echo resembles a monster radio station more than a typical radar. It stands on a rocky shoreline at the north end of San Clemente Island.



The 1,200-foot-long by 400-foot-wide antenna consists of a quarter-mile row of 150-foot towers and a spider web of wires.

The sophisticated electronics and full-size computer are housed in trailers powered by three diesel generators.

The radar's signals will observe the coast of California, Oregon, Washington and British Columbia and a wide section of the Gulf of Alaska and can zero in on any of 400 designated 80 by 80-mile sections of ocean, as far away as the westernmost tip of the Aleutians.

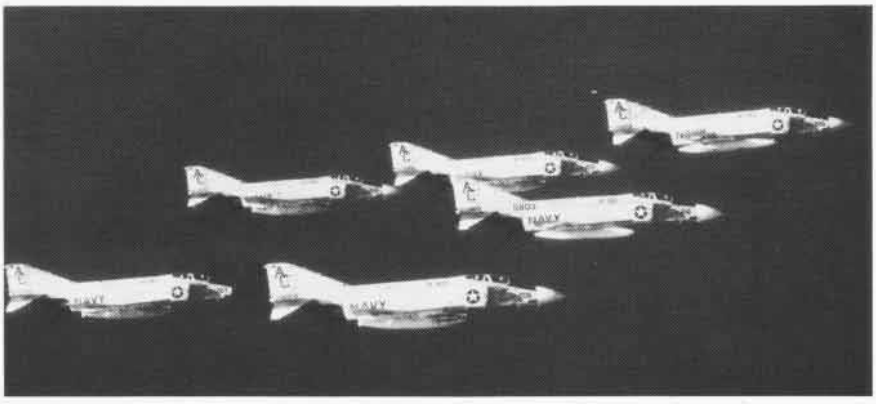
Unlike microwave radars operating with short wavelengths and "dish" antennas, *Sea Echo* uses long wavelengths which exactly match ocean waves and are reflected by the ionosphere over the horizon. *Sea Echo's* computer records the returning echo scatter and the time delays for the echo return to produce

contour line maps showing differing wave heights, directions and periods, within an hour and a half of echo observations.

This radar-scanning technique employed in the Gulf of Alaska could help scientists predict destructive wave activity along the northwest coast of America and help determine average wind conditions near the ocean surface for 6 to 24 hours. It could also improve warnings to coastal areas and ships likely to be damaged by high waves.

Visual Target Acquisition

Fighter Squadron 103 is the first East Coast squadron to receive F-4J *Phantom IIs* with the visual target acquisition system. The new system enables the pilot to command the radar for rapid target acquisition and improved missile



firing in a dogfight. The system uses an infrared light system with a specially designed helmet which sets the radar with the pilot's line of sight. When the pilot takes control of the radar, he may acquire any target in his line of sight and fire a missile.

P-3Bs Modernized

The operational capability of the P-3B is being increased to cope with modern ASW threats. A modernization program at the Naval Air Test Center, Patuxent River, Md., will replace the plane's 20-year-old inertial navigation and tactical display system with a new very-low-frequency navigation system and a general purpose digital computer.

The plane's ability to stabilize a sonobuoy pattern is now being made comparable to the more modern P-3C and S-3A aircraft. Equally good results have been obtained in the geographical navigation area.

Production systems are expected to be in the fleet by December 1976.

Ground Proximity Warning System

The Naval Air Test Center is preparing to evaluate a programmable Ground Proximity Warning System using fixed-wing A-7s and rotary-wing H-53s to determine ground-warning parameters.

The system will automatically and continuously monitor the plane's flight path at all radio altitudes between 50 and 2,450 feet.

Impact warnings are given by a red light in the cockpit and the words "glide slope" are repeated on speaker and interphone. In the "hard" warning the message repeats faster at a higher audio level as glide-slope deviation and altitude decrease.

The system's computer is self-testing and monitoring in all modes and functions, from the cockpit and on the ground.

grampaw pettibone

'Cable'-gram

An instructor pilot (IP) and a student Naval Aviator (SNA) were preparing to proceed on a scheduled cross-country flight in a TH-57 *Jet Ranger*. The instructor had considerable experience with over 1,700 hours, more than 500 in the TH-57. The IP and SNA proceeded to the flight line where the crew downed the first two helos. They accepted the third one.

The IP briefed the student on the planned flight and gave a general briefing on egress and start procedures. He then occupied the left seat, the position he occupied for the duration of the flight. (The right seat is the pilot's seat and must be occupied by instructor pilots on all student syllabus night training flights.) The IP later said that the reason he strapped into the left seat was that he felt much more comfortable and relaxed in the seat from which he flies 90 percent of his student instructional flights.

They departed home field and proceeded to an AFB to refuel. They flew at 700-800 feet msl and 100 kias. They arrived at the AFB and refueled. The pilot received a weather briefing which stated there would be isolated thundershowers en route to his next stop. They made an uneventful departure but the IP could see thunderstorms to the east, in line with his intended flight path. He chose to alter his flight path to the west in order to circumnavigate the storm.

After awhile he decided not to proceed to his filed destination but to alter his flight plan and proceed to a new destination. He proceeded at an altitude of approximately 1,000 feet msl. He landed at the new destination and refueled. At base operations he refiled and received a verbal weather

brief. The weather was forecast to be ten miles and clear.

They departed and climbed out to the northeast below 500 feet until clear of the airport traffic area. They remained below 500 feet to stay below commercial air traffic. There was somewhat of a horizon but it was a dark, no-moon night. When clear of the control zone, the IP climbed to approximately 1,000 feet msl, checked his altimeter, leveled off, and proceeded on course.

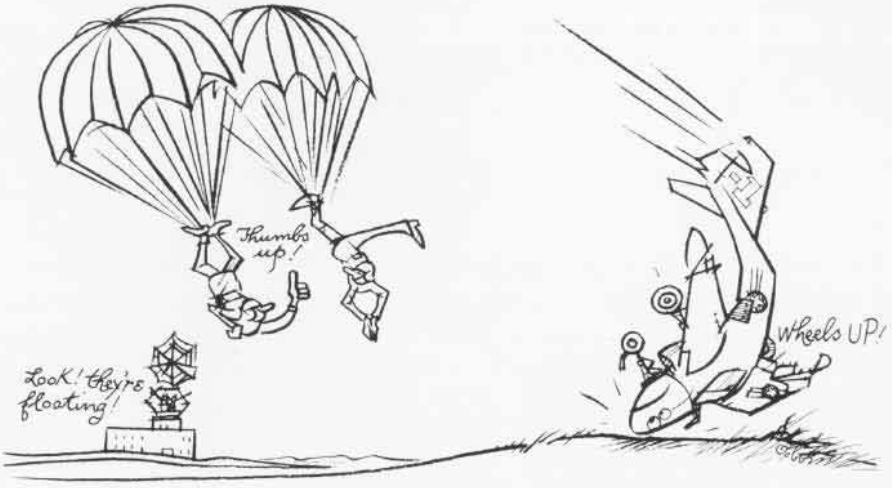
Approximately 30 minutes after takeoff, the crew felt the aircraft jolt and yaw to the right. At this same time, a witness on the ground reported seeing the aircraft strike a cable. The aircraft was flying approximately straight and level at 100 kias when it struck a 300-foot-long static cable which was suspended between two power poles on opposite ends of an overpass. The helicopter pitched up and down, then yawed right; the pilot had very little control as it hit a fence around a parking lot and came to rest on its right side. The crew was, miraculously, uninjured.

ILLUSTRATED BY Osborn

Grampaw Pettibone says:

Holy smokes! I don't believe it! This gent violated so many rules, I don't know where to start. The worst part is that he also violated plain common sense.

This gent claims that he feels "more comfortable" at low altitude!? Would you believe that a pilot can lose 700 feet of altitude in 15 minutes and not recognize it – especially when you start at 1,000 feet! I believe we should comply with this pilot's desires and keep him at a "low altitude" – *zero feet on the ground*.



Non-Emergency Fuel Exhaustion

A young Naval Aviator replacement pilot and his replacement bombardier navigator were scheduled for night field carrier landing practice (FCLP) at a nearby outlying field. Following a routine brief in the ready room, the RP and BN proceeded to an A-6 *Intruder* and completed the preflight, start and taxi without incident. The pilot was in his last week of FCLP training. This was the BN's first FCLP period, however.

Following an uneventful departure, the A-6 proceeded to the outlying field and entered the pattern. At the completion of the FCLP period, the A-6 received clearance to depart and contact home-field tower for landing. The crew, which had reported a fuel state of 3,400 pounds on its final pass, acknowledged the clearance and departed for the short flight back to home field.

When departing the field, the crew raised the landing gear and noticed an unsafe nose-gear indication. The pilot reduced power in order to not exceed 200 kias. He requested the BN to consult the Natops pocket checklist and read the recommended procedure over the ICS. The crew read the procedure which calls for a visual check if possible and then a recycling of the landing gear in an attempt to get all gear up and locked.

Tower was contacted and told that the *Intruder* had an unsafe nose-gear indication. The crew requested permission to enter the break with the flaps down and to have someone give them a visual check. Tower informed the *Intruder* that no aircraft were available for an airborne check. The pilot then switched frequencies and contacted the squadron operations duty officer (ODO), stating that he had an unsafe nose-gear indication.

The ODO referred to the Natops pocket checklist and asked if the crew had its pocket checklist out, which it had. The ODO advised that a visual inspection was necessary to determine if the gear was down and locked. The ODO further recommended that they have the tower or the squadron LSOs at the outlying field do the visual check, indicating that the LSO was the best alternative.

The aircrew switched frequencies back to the tower and requested permission to depart the pattern and return to the outlying field. Meanwhile, the squadron ODO called the LSO to inform him that the A-6 was returning for a visual check of nose-gear problems. The tower offered to provide a gear check on a low fly-by and the A-6 accepted that course of action. A low fly-by past the tower confirmed that all gear appeared to be up.

The tower utilized a white Aldis lamp for checking the landing gear and asked if the aircrew was going to blow its gear down. The pilot lowered the gear handle and all gear indicated down and locked with no other unsafe indications. This was reported to the tower.

The tower requested a fuel state, which was given as 2,000 pounds. The pilot was informed of an A-5 inbound that could check his gear. A gear-down fly-by past the tower was performed and the tower confirmed that all gear appeared to be down and locked. The pilot requested that the A-5 check the gear also. The A-6 now had a fuel state of 1,500 pounds. As the A-5 was closing, the A-6 pilot reported a fuel state of 1,000 pounds and that this was his final turn around the pattern. The A-5 effected a rendezvous and shortly thereafter the A-6 reported a dual engine flameout and intention to eject.

The pilot steered the aircraft toward an uninhabited area prior to ejection. The flight terminated with a successful ejection and the aircraft crashed into a field near home base.

Grampaw Pettibone says:

Holy Hannah! I don't believe it! Lost a flyin' machine because of lack of communication! I must'a read this report about a dozen times. I can't believe that a Naval Aviator assisted by a Naval Flight Officer can run a plane out of gas while they're checking to see why the landing gear would not lock in the *up* position. Someone please help and save me from this type of amateurism. Who in the h--- cares if the gear won't lock up *when you are running out of gas?*

I figure most pilots know that a real gear problem is one that will not lock *down*; I say again, one that will not lock *down*! I guess that the tower people and the duty officer just assumed that if he had a gear problem it must be a "down" problem. Certainly no one would be making all of this fuss over a gear-up problem!

Talk about confusion and lack of communication, this is a classic! I can't recall the last time I was so teed-off about an accident. I say that we don't need this driver or his helper!

Airship

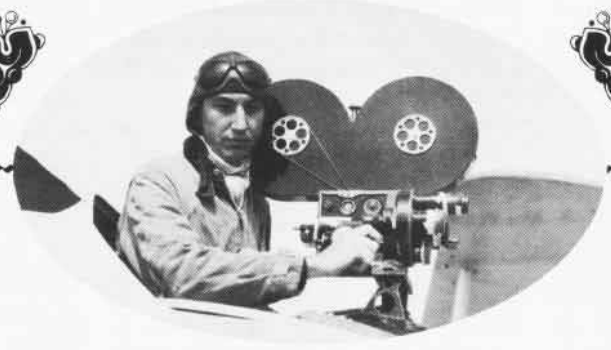
George Carroll was one of the Navy's first aerial photographers and produced the USS *Macon* pictorial on these pages. In the early 1930s he was ordered to the Sunnyvale Naval Air Station (renamed NAS Moffett Field in 1942) to film all aspects of ZRS-5 operations. Earlier airships, *Shenandoah* and *Akron*, had been lost. Carroll was given free rein while aboard and took pictures from every imaginable angle. He even rode in the "spy car." This one-man vehicle was designed so that it could be suspended by cable below a cloud layer for scouting endeavors. It was towed by the airship which remained concealed by the clouds. After a ride suspended 500 feet below the mother ship, Carroll admitted that "I only did it once and that was enough."

In this photo Carroll was on another unusual assignment. He was sent to NAS North Island in 1930 to help solve a problem with the F8C4 fighter planes, all of which had been grounded due to structural problems.

With his hand-cranked Bell & Howell 35mm camera he rode with a VF-1 pilot on a number of test flights. It was thought that empty cartridges from the wing-mounted guns were tearing holes in the tail fabric and proof was needed so modifications could be made. The pilot would dive at high speed, shooting away with the guns.

As Carroll tells it, "I was positioned in the aft cockpit riding backwards and hand cranking the camera in vertical full-power dives from 15,000 feet to fast pullout at 10,000 feet. I blacked out for several seconds in the pullouts. However, I somehow managed to keep cranking my movie camera and getting pictures of the tail movements which were greatly appreciated by the naval officer pilots and aeronautical engineers from the Curtiss Company."

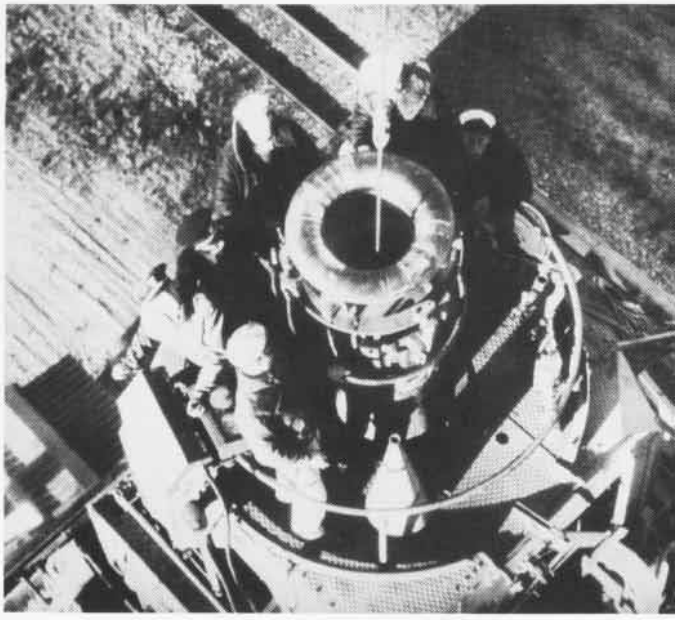
Analysis of Carroll's film proved that cartridges weren't the villain. It was determined that a structural weakness in the tail itself was the cause. "I suppose the tail could have given way any time during those flights," says Carroll, "but I just didn't think about it at the time."



Sunnyvale was commissioned in 1933, and featured a huge airship hangar with orange-peel doors at either end. Carroll photographed the air station from the non-rigid airship J-4, the first to fly from the California base. USS *Macon* arrived at the south mooring circle on October 15 after a 73.3-hour journey which began at NAS Lakehurst, N.J. Commander Alger Dressel was in command on the flight. The course took the airship south across Atlantic coast states then westward over Georgia, Alabama, Mississippi, Texas and Arizona. *Macon* swung north near San Diego and followed a Pacific coastal route to San Francisco Bay. The only trouble spot along the way was San Angelo, Texas, where Dressel and crew orbited for several hours waiting out lightning-streaked thunderstorms.

Ground crews waited on the mooring mast as *Macon* approached. The mast cup resembles a doughnut when viewed from the forward service platform door aboard *Macon*. The nose cone was locked into the cup. The lower vertical fin was gently secured onto the stern beam. This beam was connected to the mast unit by solid couplings which were supported on flatbed railroad cars. These allowed the airship, mast and stern beam to be slowly moved from the mooring circle as a unit with little or no stress on the airship's structure.

The highly trained ground crew at Sunnyvale consisted of five officers and 150 enlisted men. *Macon's* personnel complement included ten officers and 50 enlisted men assigned to lighter-than-air related duties. Four officers and



15 sailors aboard had heavier-than-air duties. The airship was 785 feet long and had a 144-foot maximum width. It was made of duralumin 17-SRT metal and was covered by 33,000 square yards of cotton cloth. The cloth was treated with four coats of clear dope and two coats of dope treated with an aluminum pigment.

Macon had 12 main frames 74 feet apart. Thirty-three intermediate frames were spaced 16 feet from each other. There were 36 longitudinal girders and three keels – port, starboard and upper. Hollow-hull space measured nearly 7.5 million cubic feet. Twelve helium gas cells, made of gelatin latex, provided lift. The airship's dead weight was about 242,000 pounds but it had a gross lift for normal operations of 410,000 pounds with helium cells filled to 95 percent capacity. The gross lift figure included 168,000 pounds for the crew, food, gasoline, oil and ballast water.

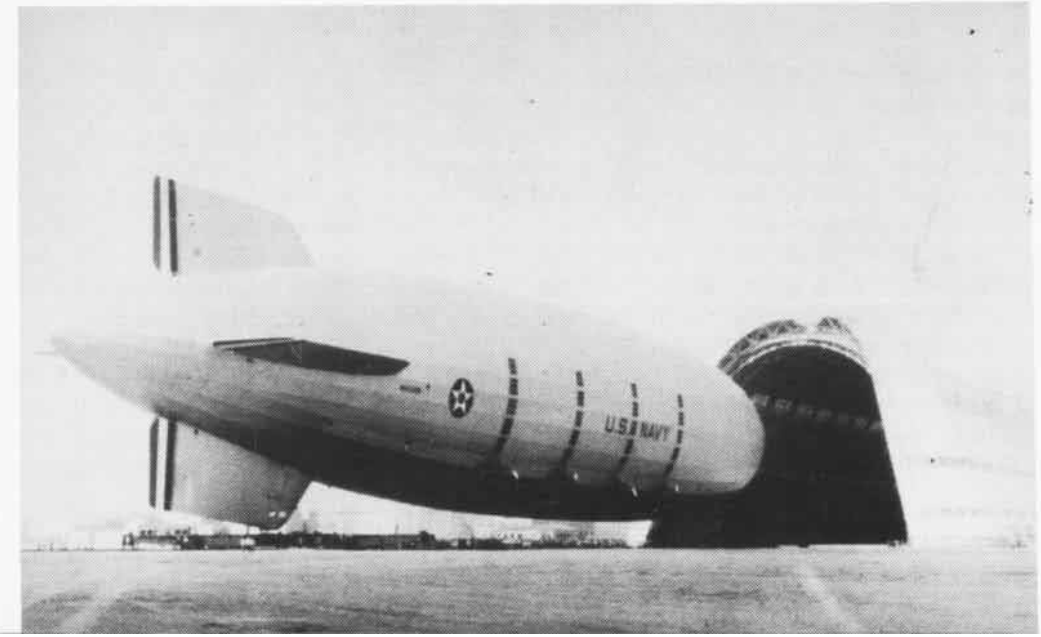
At the forward section of the lower vertical fin was the auxiliary airship control station, an arrangement similar to that in surface vessels. It was equipped with rudder and elevator control wheels, altimeter, airspeed indicator, rise and fall indicator and a telephone. The station was manned during mooring and un-mooring operations.

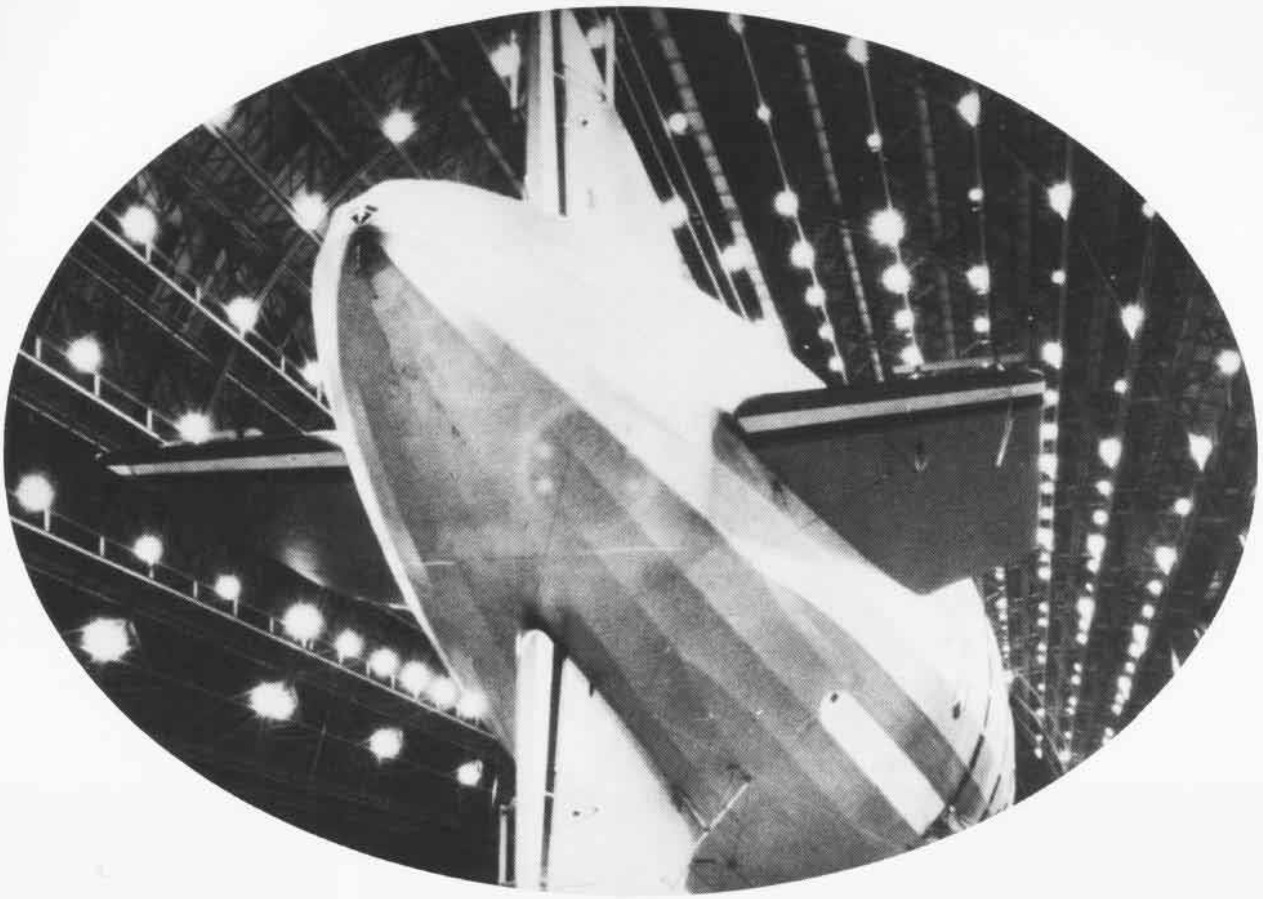
The author spent much of his airborne time here. For photographers this was an ideal vantage point. There was an unrestricted view forward and to either side of the airship. Despite vibrations, and the swaying sensation of structural movements, plus singing tension wires, it provided an excellent platform for photography.

Orange peel doors at the north and south ends allowed the airship to be moved out of or into the selected aperture depending on prevailing winds. *Macon* is shown being towed near the south mooring circle.

Geometric patterns of hangar lights illuminated *Macon* at rest during the first night at Sunnyvale. The hangar was almost four football fields long, over 300 feet wide at ground level and nearly 200 feet high.

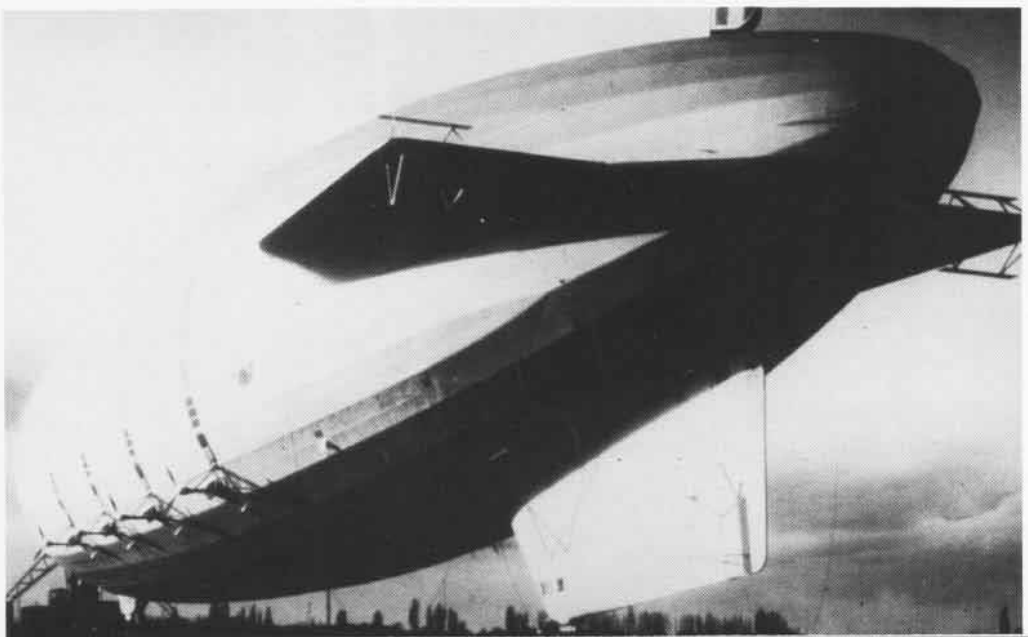
The south area was utilized as often as possible. The Bayshore Highway near that end afforded the public a grandstand view of airship-handling activities. Cars and

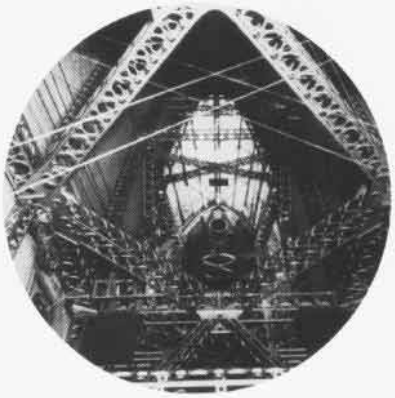




spectators jammed the area for several hours before and during flights. Many had cameras which led Carroll to assert that *Macon* became the most photographed airship in history.

Looking like vertical rows of windows were finned radiator-type units stacked above *Macon's* eight engines, four on either side. These units condensed the exhaust into a contaminated water mixture which was collected in ballast bags inside the airship. About 100 pounds of water could be recovered for each 100 pounds of gasoline burned. Equal load distribution in flight was achieved this way.

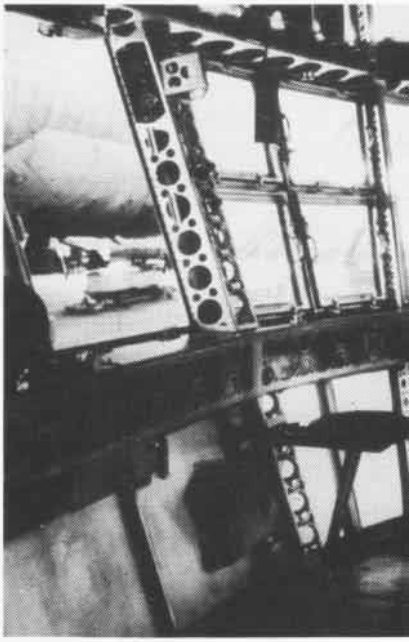




The helmsman swung his wheel to operate the rudder sections on the vertical upper and lower tail fins. Virtually a house of glass, the cabin resembled a ship's bridge and was impressive in its neat and functional design.

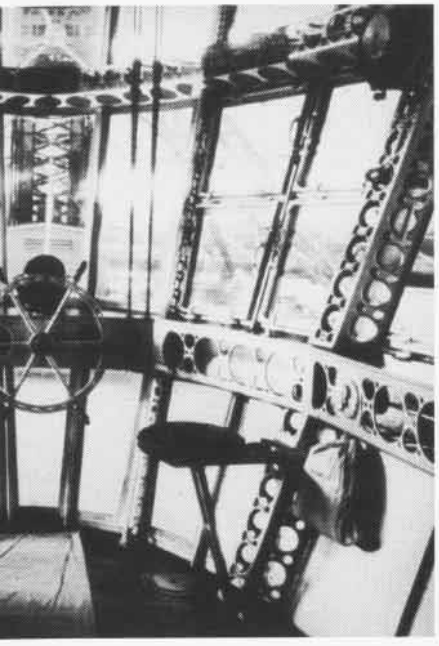
View on the left shows cabin's port side, looking aft. In upper left corner were emergency helium release controls. In the upper right area the water ballast emergency dump controls were rigged. Twelve tons of gasoline and water could be quickly released. Elevator wheel in center controlled elevator sections on the horizontal tail fins.

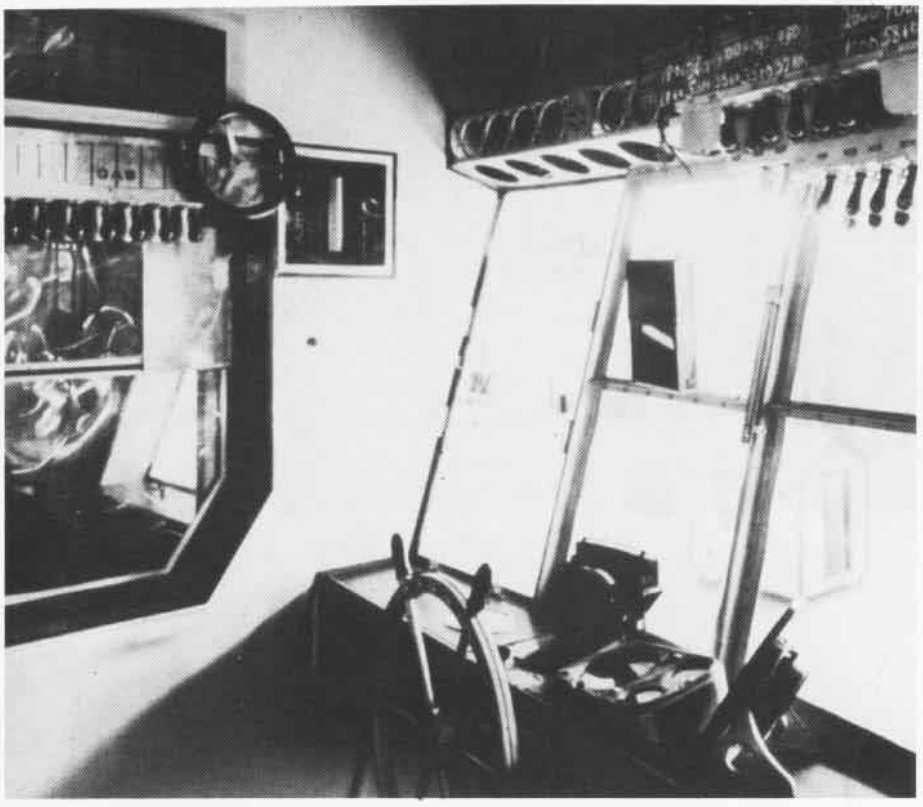
Picture on the right was taken looking aft on the control



cabin's starboard. Annunciator signal units were connected to the eight engine compartments. Telephone was one of 16 automatic-dial types which functioned as *Macon's* intercom.

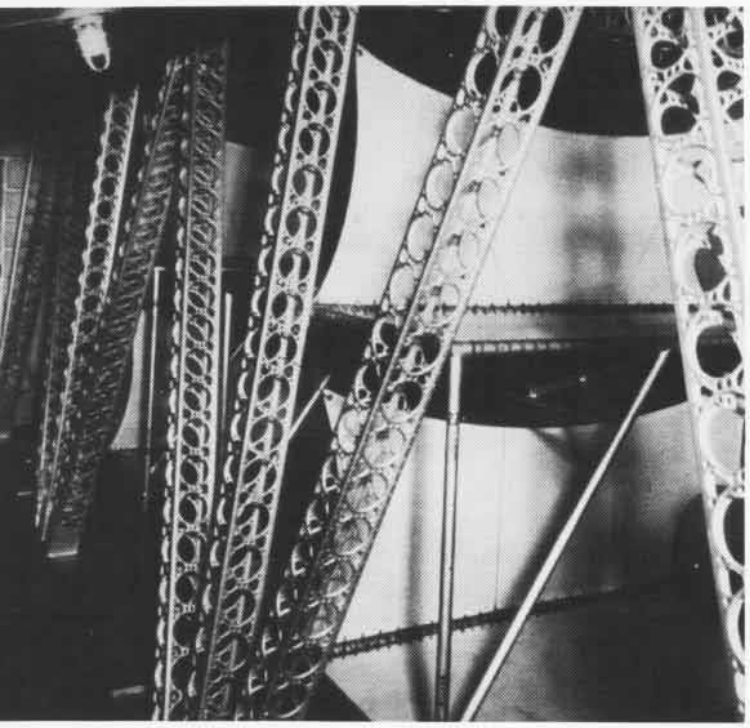
Circular pictures provide overhead view of lower fin and crewman working on an annunciator. *On back cover,* the port keel walkway and duralumin girder framing seemed like an endless maze of metal. Holes in the girder structure reduced weight without loss of structural strength. Round object was one of 110 gasoline tanks dispersed equally on either side of the airship. They held 126,000 pounds of fuel. Quilt-like fabric overhead was part of helium gas cell.

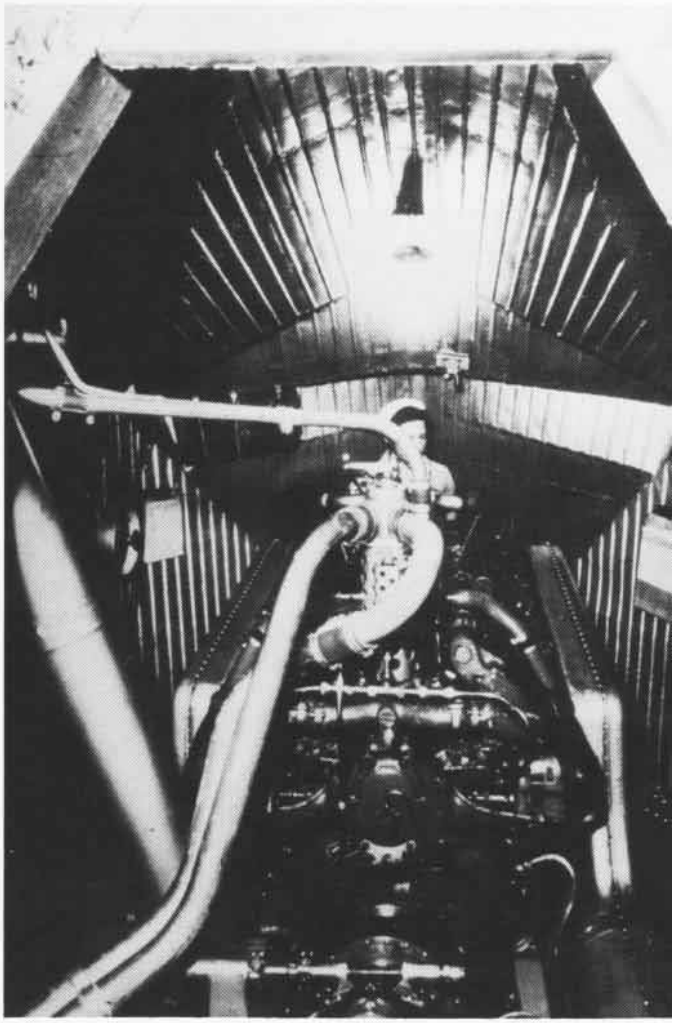




There were about 30 bunks in the enlisted crews' sleeping compartment. Two members alternated using a single bed. Crews were divided into two duty sections, worked four hours on watch, followed by four off. A six-foot by six-foot compartment, about seven feet high, adjacent to the bunk room, was the airship's smoking room. It was the sole locale where smoking was permitted. A maximum of six men were allowed in at one time but ventilation was so poor that a light smoker had only to step inside, inhale a few breaths, and his smoke break was complete.

Macon was powered by Maybach VL-II, 12-cylinder V-type, German-built engines. Each was rated at 560 hp at 1,600 rpm. The engines were connected to the three-bladed propellers, 16 feet in diameter, through Allison gear. The engines could develop maximum horsepower when operated either in clockwise or counterclockwise direction. Motor mechanics in the engine compartment maneuvered



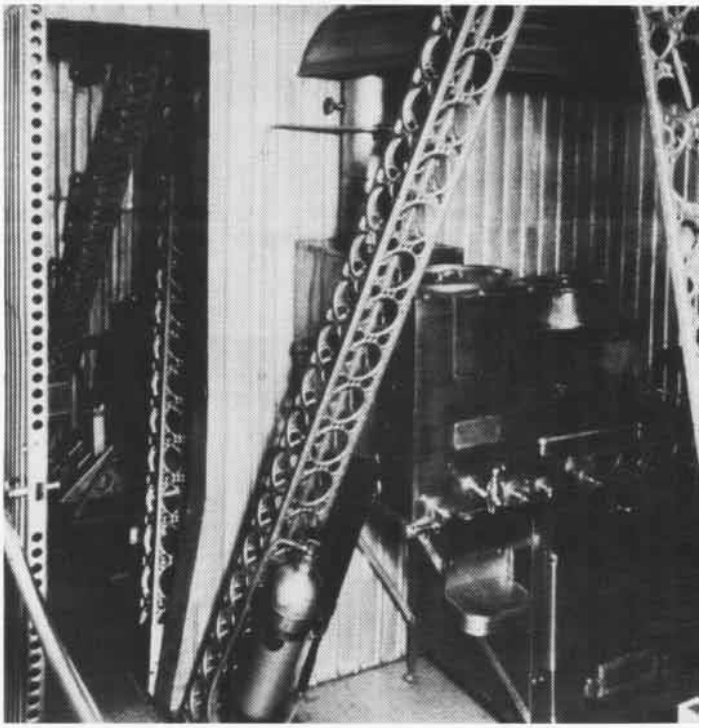


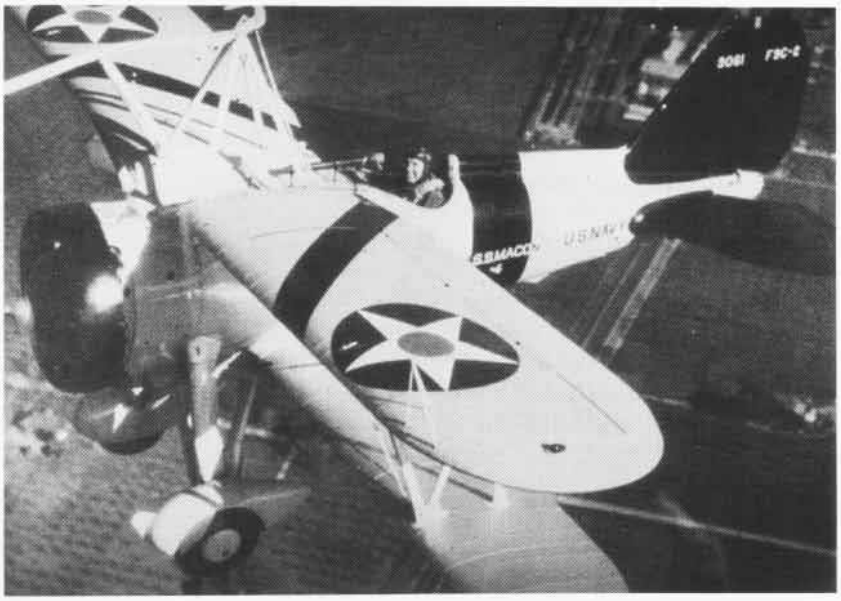
the adjustable pitch propellers upon command for forward, backward, upward or downward thrust through the annunciator signal system.

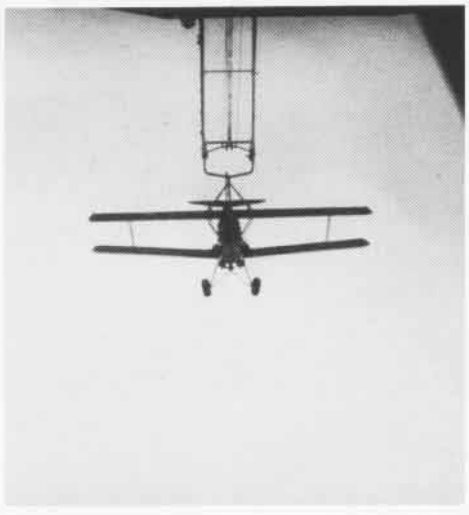
Macon's water recovery system was connected to the water ballast bags which were positioned inboard of the port and starboard cells adjacent to the gas tanks. In flight, crewmen labored continuously pumping fuel and water ballast to ensure proper distribution of weight throughout the huge craft, a critical requirement.

CPO C.S. Solar was pictured during one of these pumping evolutions as he issued directives and reports over the telephone.

The galley featured a small propane gas range where a cook prepared food for the entire company. In the adjacent dining compartment 12 men could eat at one time. Dinnerware was made of lightweight durable plastic. Silverware was also lightweight, and was manufactured from a chromeplated aluminum material.

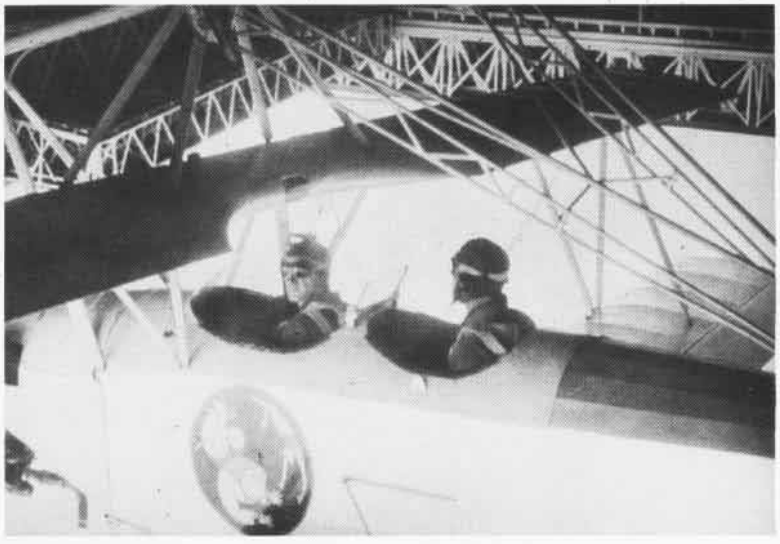






Five F9C-2 *Sparrowhawk* fighters were assigned to *Macon* and flew vector search missions during fleet maneuvers. The Curtiss-built planes would approach the airship's trapeze from below, then climb slightly at a slow closure rate as *Macon* achieved its top speed of approximately 85 mph. The *Sparrowhawk's* hook would "catch" a trapeze and then be hoisted up and into the aircraft. It was then transferred to a trolley along a monorail. Four aircraft were secured in a hanging position in the hangar space. The fifth stayed on the trapeze.

N2Y-1s also made hook-on landings aboard *Macon*. The two-place trainer was used for ferrying passengers from the ground to the airship and vice versa – shades of *Star Trek's* transporter device.



Framed by the open hangar, *Macon* looked like an overgrown satellite, as it was prepared for flight.

The airship cruised at 55 knots, had a max speed of 75 knots and could remain aloft for more than 100 hours covering 6,000 miles. From April 1933 to February 1935 *Macon* made 54 flights and logged 1,798 hours. She participated in fleet war games in the Caribbean in 1934, operating out of Opa Locka, Fla. At one point en route to Opa Locka, while near El Paso, *Macon* encountered severe turbulence. Violent stress loads were inflicted on the airship. Some girders were fractured. CPO Robert Davis alertly directed repairs using shoring material which had been carried for just such a contingency. Within a half hour after damage was sustained, the repair action was complete. *Macon* continued her journey to Florida. Davis was credited with saving the airship from certain destruction.

CPOs Joe Barton and Harry Probst manned the auxiliary control stations while *Macon* was in mooring process. Lt. A. Hingsberger, USN(Ret.) submitted this picture, probably filmed when *Macon* was at Akron, Ohio.

Size of airship is dramatized as human figures examine lower vertical fin.

Macon's longest flight occurred in July 1934. It lasted 83 hours, and covered 4,000 miles. The airship intercepted USS *Houston*, a heavy cruiser, 1,500 miles west of Central America. Aboard *Houston* was President F.D. Roosevelt.

Tragically, *Macon* was to go the way of her predecessors. The author was not aboard the airship's final flight when she crashed in the Pacific. Two men perished, the remainder were rescued.

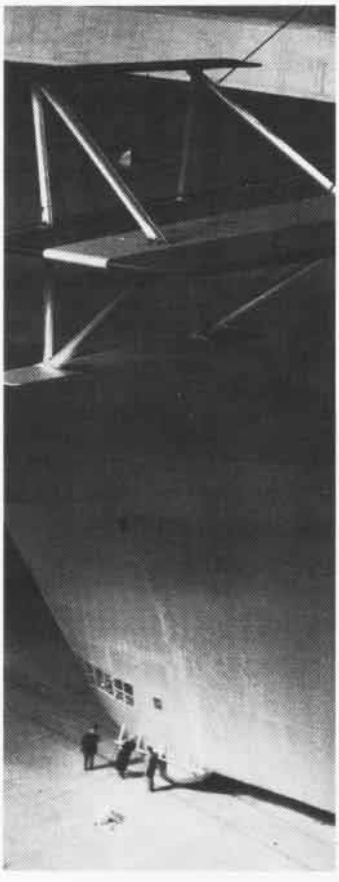
It was February 12, 1935. LCdr. Herbert V. Wiley was in command and in addition to 83 personnel, there were four *Sparrowhawks* aboard on exercises off the California coast.

As *Macon* neared the coast on the way home she encountered turbulence. Wiley tried to keep *Macon* under the clouds and descended to 1,250 feet. Despite the weather all seemed well and the cook was preparing a roast chicken dinner. Mooring was scheduled for 7 P.M.

At a little after 5 P.M., three miles west of Point Sur, a sharp jar was felt throughout the airship. The elevator wheel spun out of the controller's hands and *Macon* nosed up. Within moments a gas cell located aft was reported to have deflated. Wiley, who was one of three survivors of the *Akron* crash, ordered water ballast and fuel dropped from the ship's after section. He directed other adjustments to try to level the airship, releasing helium from the forward cells. Rear port and starboard engines were set at full rpm in an effort to level the airship and restore trim and control.

Chief Radioman Ernest Dailey began sending SOS messages which he did continuously in the next perilous moments.

Part of *Macon's* outer covering had been torn away. It



soon became evident that serious structural damage had been sustained. *Macon* was literally out of control, her nose tilted 25 degrees up and she was rising rapidly.

Wiley ordered all available personnel to the nose. Sixteen managed a monkey walk along the girders scrambling uphill for about 325 feet. Their weight up forward failed to help.

AMM first class K.H. McArdle was perhaps the coolest member of the crew at this moment. As he passed the galley on his way forward, McArdle grabbed a whole roasted chicken, stuffed the bird into his flight jacket and pulled up the zipper.

A ship's officer passed McArdle, who had sat down on a catwalk to rest and eat his chicken.

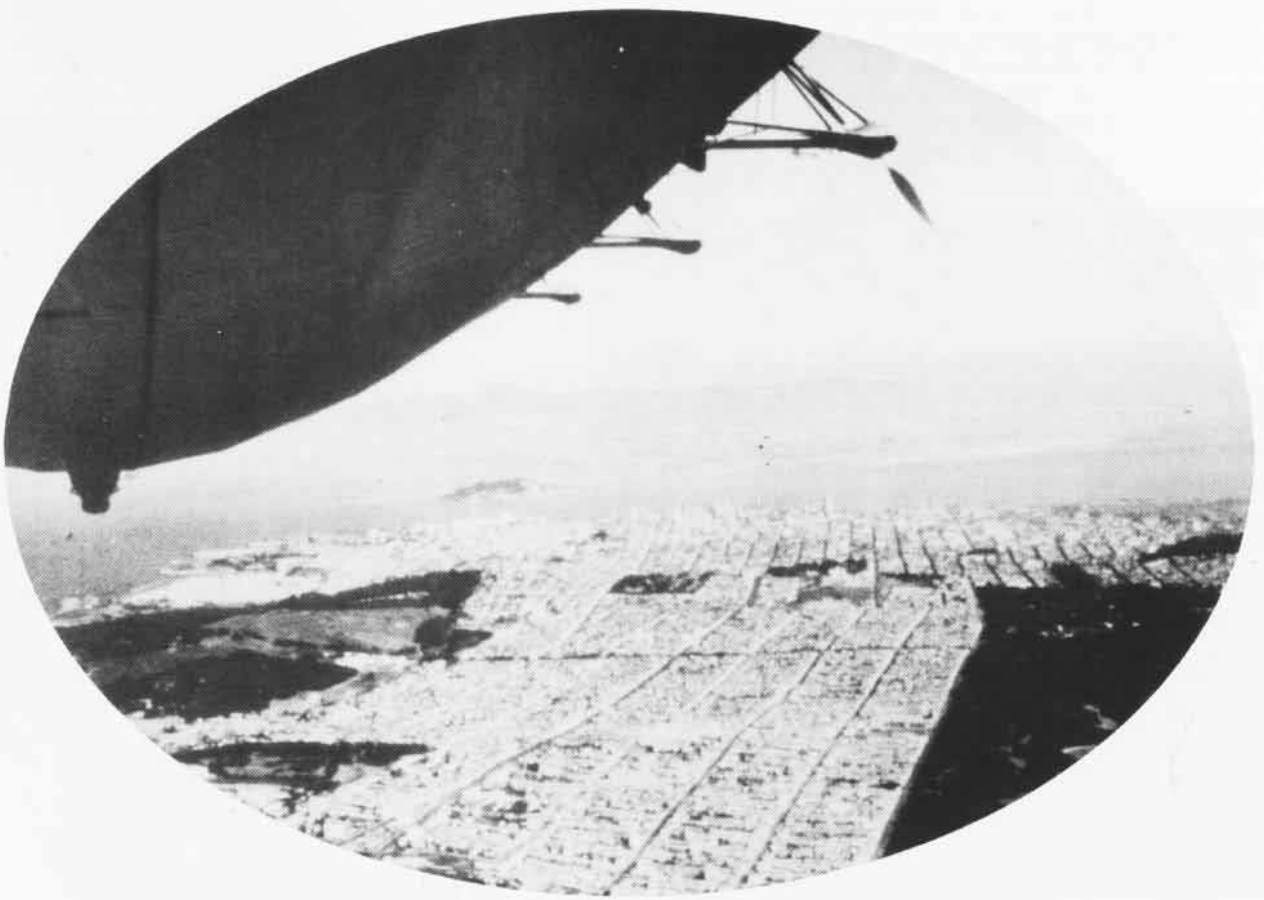
"McArdle," asked the stunned officer, "how can you sit there eating a chicken when our ship is going down ?"

"Sir," replied McArdle, "if I have to meet my Maker I want to meet Him with a full stomach."

Automatic relief valves had opened as *Macon* passed 3,000 feet in its ascent. Since an excessive amount of helium had been released during the climb, the airship peaked at 5,000 feet. It began to fall, tail down, at a rate of 750 feet per minute. Halfway to the waiting ocean the rate was slowed to 300 feet per minute through careful managing of gasoline and water ballast. The descent rate was further reduced to 150 feet per minute but collision with the sea was inevitable.

At 5:39 P.M., some 33 minutes after the jolt which shook the entire airship, *Macon's* tail struck the water. She sank slowly, stern first, the framework collapsing as sea swells struck her. At 6:20 P.M., about 12 miles from Point Sur, *Macon's* nose disappeared and the airship, which was nearly the size of an aircraft carrier, was swallowed up by the sea.

Chief Dailey, and Florentine Edguiba, a mess attendant, lost their lives. The 81 survivors were rescued by Navy cruisers. The last was hauled to safety at about 7:40 P.M.



T-28

The Navy's T-28B and C are among the oldest aircraft currently in the active inventory. Their basic design dates back to a post-WW II Air Force requirement for a training aircraft serving as both a primary and basic trainer. Following a design competition, North American's proposal became the Air Force's T-28A, going into service in 1950. At least one found its way into Navy operations for VIP purposes.

With the advent of the Korean War the Navy determined that a new basic trainer was necessary to prepare student Naval Aviators for the higher performance aircraft coming into service. In 1952, an improved version of the T-28A was ordered and designated T-28B. The principal improvement was an engine of more than twice the Air Force version's 700 horsepower.

The T-28 series incorporated the latest refinements for piston-engined aircraft, including such features as tricycle landing gear, bubble-type canopy and engine cowling incorporating exhaust jet augmentation. The Navy version, with its higher powered Cyclone engine giving it a top speed of nearly 300 knots, had performance like early WW II planes.

As the T-28B came into service, the need for similar capabilities in carrier training led to a modified model equipped for ship operations. This included the obvious carrier hook with attendant aft fuselage/tail modifications, strengthened as needed for carrier operations, and the nine-inch reduction in prop diameter accompanied by slightly increased blade chord.

A total of 489 T-28Bs and 299 T-28Cs were delivered to the Navy, in the mid to late Fifties. The initial Bs were built in California while the later Bs and Cs were turned out by North American's Columbus, Ohio, plant.

The Navy T-28s saw many different types of duty, the only ones gaining a different designation being the Bs, modified as drone control aircraft which became T-28BDs. Instrument training and proficiency flying were common assignments over the years. When the Air Force's T-28As were declared surplus, modifications to bring them up to T-28B standards were developed and many were converted mostly as ground attack aircraft with additional wing-store stations for various air forces around the world.

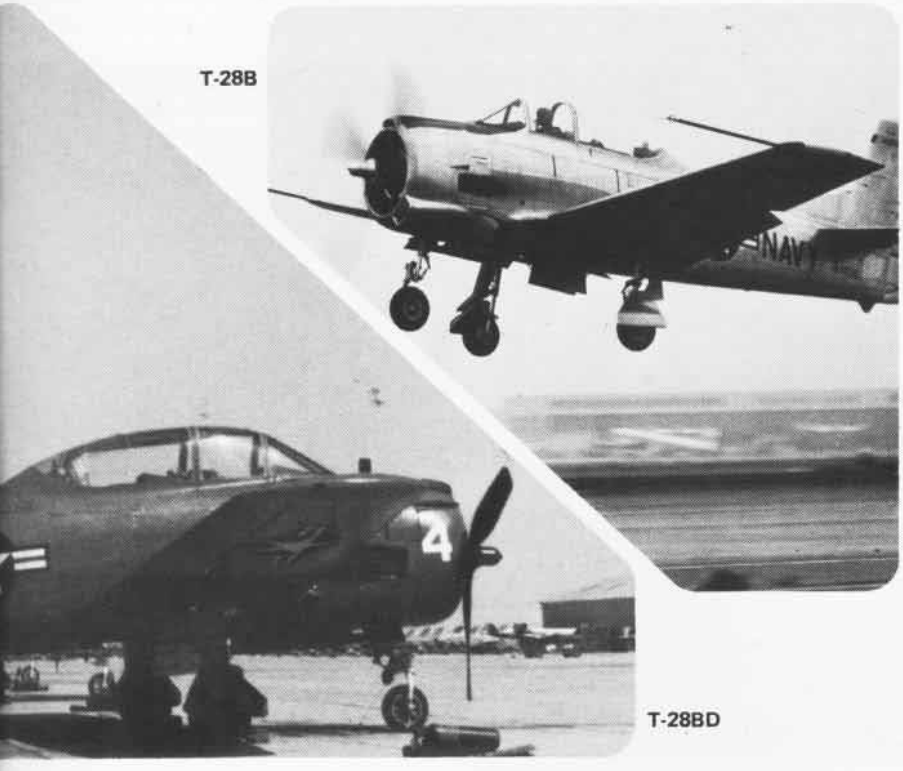
T-28C

T-28C

TROJAN

T-28A

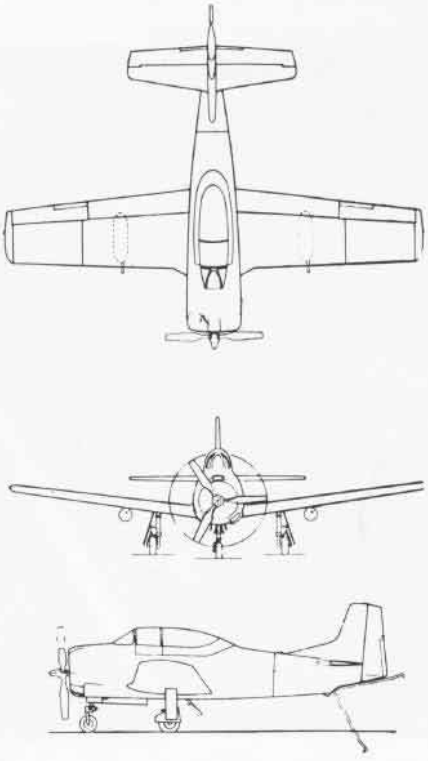
T-28B



T-28BD

T-28

Span	40'7"
Length	
T-28B	32'11"
T-28C	34'5"
Height	12'7"
Power plant	
Wright R-1820-86/86A	1,425 hp
Maximum speed	
T-28B	290 kts
T-28C	286 kts
Service ceiling	
T-28B	35,600'
T-28C	34,300'
Range	
T-28B	830 nm
T-28C	750 nm
Armament	
Basic:	two .50 cal. gun packs or two 100-lb. bombs or six 2.25" rockets
T-28C modified	two .50 cal. gun packs or six 100-lb. bombs or four LAU 68A rocket launchers (with seven 2.75" rockets each)



Testing on Nimitz

By George F. Hurlburt
Technical Support Director, NATC

It's Sunday and Norfolk's Pier 12 is sundrenched. USS *Nimitz*, the Navy's newest and second nuclear attack carrier, stands majestically alongside. The dignitaries have left but a tourist atmosphere still prevails. Guests and dependents are everywhere.

The activity abeam elevator #3 almost goes unnoticed. Dwarfed by the ship, the three tractor trailer trucks hardly appear significant. The trucks, containing complex technical equipment, arrived on schedule from NAS Patuxent River. Now the 20 engineers, 34 technicians and 69 maintenance men from the Naval Air Test Center (NATC) cluster around. There is work to be done. It will continue without fanfare until dusk. The tourists will have gone home. The trucks will leave empty.

Nimitz is impressive. The island, uncluttered by stacks, stands slightly aft of where one would normally expect to find it. Its position highlights the 1,090-foot flight deck. The crew is new and, like the flight deck, unexposed as a unit to the rigors of flight operations, but its morale is high. Flight operations, especially on this virgin deck, will be exciting.

Monday rolls past without a hitch. As the sun disappears beneath the stern, the faint outline of the Norfolk naval base fades in the ship's wake. *Nimitz* is underway. Expectations give way to routine. Directed by representatives from NATC, engineers and technicians make final connections

Corsair nears touchdown on Navy's second nuclear carrier, USS Nimitz. NATC personnel, in the air and in the ship, evaluated various phases of carrier air operations.

and check their gear. They are ably assisted by personnel from the Naval Air Test Facility, Lakehurst and engineers from the Naval Electronic Systems Test and Evaluation Detachment (NESTED). Tomorrow will be a big day. The test equipment, located now in many strategic positions, must operate precisely. Safety is paramount.

Tuesday is sunny. The Atlantic Ocean off the Virginia Capes is relatively calm. It's a perfect day to initiate *Nimitz*.

Flying in formation, two A-7s, one A-6 and one RA-5C from NATC make a long arcing pass to starboard. They break forward. Flight operations begin in earnest. Two C-1s have already recovered. One carries Rear Admiral F. T. Brown, Commander of the Naval Air Test Center. Later NATC's air wing is completed with the arrival of two F-4s, one S-3 and two F-14s.

These are not ordinary aircraft. Endowed with a sense of feel, they can electronically report their sensations to the ship. On each launch or recovery, they telemeter their attitude (yaw, pitch and roll), their airspeed and selected stresses to a central data point located directly below the flight deck. Here, aft of elevator #1, the technicians record the incoming data both on computer tape and on moving graph paper.

NATC engineers filled many nooks and crannies aboard Nimitz, recording critical data.

The glossy pink scrolls on graph paper will proliferate. They will begin to pop up almost everywhere engineers gather: at the data points, in the ready room, in staterooms, and, occasionally, even in the wardroom. The information imprinted on these tiny graphs tells a lot. Stress on the holdback bar (or bridle) plus airspeed plus attitude equal indication of catapult performance. Stress on the tail hook plus airspeed plus attitude equal the same for the arresting gear, but the graphs do not tell all. Other data must be collected by observation.

The most critical observations are made by the men in the cockpits. Thirteen test pilots and three test Naval Flight Officers have prepared themselves through rigorous buildup flights ashore to examine the limits of the ship's operating envelope. The capabilities of the new catapults will be explored from their maximum to their minimum settings. The arresting gear will be exercised through the whole range of their capacities. The ship's landing aids will be evaluated during both day and night operations. If there are any anomalies that will interfere with fleet operations, the test flight crews will find them.

Flight operations continue. The roar and whine of jet engines during the second period do not still the excited buzzing on vulture's row. Meanwhile, on the flag bridge, the engineers begin to settle into their fast-paced routine.

"Data, this is Flag," calls an engineer into a walkie-talkie, "niner niner five coming up for launch on cat two. Stand by for telemetry."

A static-filled reply acknowledges and the engineer grabs another radio. "Bubbles, this is Flag." He pauses to glance at another engineer's data sheet. "What is your CSV setting at present?"

The bubble, a glass-encased capsule on the bow, is raised. It peeks out near the waiting aircraft poised for launch on the #2 catapult. Inside the bubble, another engineer grabs his radio and responds. The setting is accurate for the aircraft. The engineer nods and notes the setting. The catapult officer seated in front of him pushes a series

of buttons. The aircraft screams past. Sure beats touching the deck.

Launch complete, the bubble lowers back into the deck. A plate automatically slips over the hole left by the descending capsule. The deck is clean. Recoveries begin.

An F-4 is approaching. A senior data technician on the bridge is on the radio. He is instructing other technicians to record this event on motion-picture film. The bright orange camera on the ramp end of the centerline and the two cameras mounted on the aft catwalks port and starboard are barely noticeable from the flag bridge. The technicians in the catwalks acknowledge the crackling instructions coming over their helmet radios. The airplane comes closer, its automatic power compensator causing a cantankerous whining. Cameras roll. The aircraft grabs the #3 wire; another camera, farther forward on the port side, records the trap. The whir of the fast-framing cameras, usually noticeable, cannot be heard over the roar of the F-4 engines. A hot blast of dirty air licks at the camera operators.

By Wednesday, flight operations become business as usual. The old hands among the crew, although still cautiously protective, have instructed the many novices well. Flight deck activities are visibly smooth. Launching from the waist cats, the NATC engineers communicate with the second bubble. It has been raised from the port catwalk abeam the island. Meanwhile, on the bow, technicians rig a boom anemometer. It is again time to double-check the ship's anemometer. Any miscalculation of wind speed and direction could spell disaster.

This will be especially true for F-14 minimums. When the F-14 is shot off the bow with minimum excess airspeed, the winds must be correctly registered. If not, the F-14 might sink off the bow into more than a cushion of supportive air. F-14s, not known for bouyancy in water, are not expendable. The minimums, scheduled for Thursday, went off flawlessly.

On Friday, the automatic carrier

Intruders, Corsairs and Phantoms were among aircraft flown by the NATC air crews.

Phantom gets airborne with the help of the waist cat, opposite. PriFly was a crowded vantage point during flight ops, above.

landing system (ACLS) evaluations began to dominate activities. The ACLS, a radar guidance device, automatically brings an approaching aircraft to roost on the deck. It, too, must be certified. Under the eyes of the certification pilots and NATC landing signal officers, the system is put through its paces. Additional engineers and technicians from NATC and NESTED come into play. Stationed with the air controllers and near the ACLS computers in the island, they collect more mountains of data. More pink scrolls circulate. More data sheets are filled in.

After nine days, 22 flight periods and 373 events, it's all over. The data has been flowing steadily since Tuesday. Aircraft data from telemetry provides the skeleton. It is fleshed out with other inputs: visual data from the fixed cameras; operational data from observers, such as the engineer in the bubble; mechanical data from end-speed trips at the ends of selected catapult tracks; and verbal data obtained through flight crew debriefs. When combined, there is sufficient information to certify the entire flight deck, its catapults, arresting gear, anemometers, ACLS and visual landing aids.

Nimitz returned to Norfolk on a Saturday. Her nine NATC birds left for NAS Patuxent River. The aircrews went with them. Only the engineers and technicians are conspicuous on the deck. As the tugs silently glided the ship towards Pier 12, a handful of dependents waited.

"Who are all those civilians up there?" asked a dependent, hardly aware of the three tractor trailer trucks parked nearby.

"Don't know," responded another, "must be joyriders."

Reserves Go Aboard

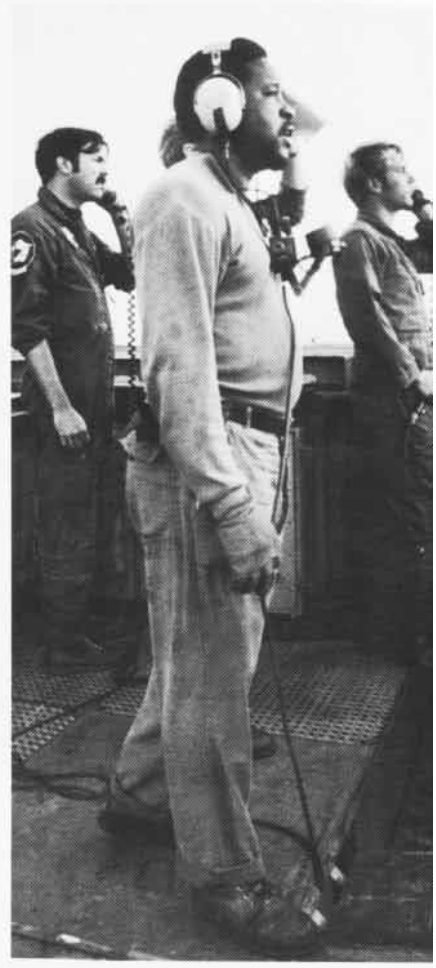
Photos by PH1 Duncan Campbell

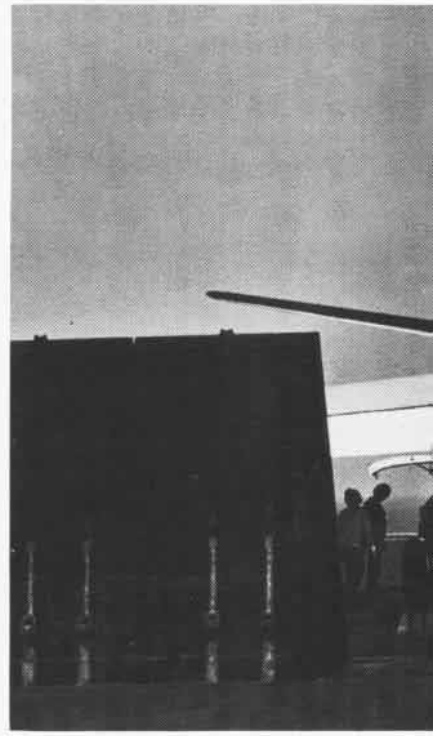
More traditional carquals took place when members of Attack Carrier Air Wing Reserve Twenty and Attack Carrier Air Wing Reserve Thirty went aboard USS *Saratoga* (CV-60) in June.

Under the command of CVWR-20, were VFs 201 and 202, Dallas, Texas; VAs 203, 204 and 205, from Jacksonville, Fla., Memphis, Tenn., and Atlanta, Ga., respectively; VAQ-208 from Alameda, Calif.; and VPF-206 out of Washington, D.C.

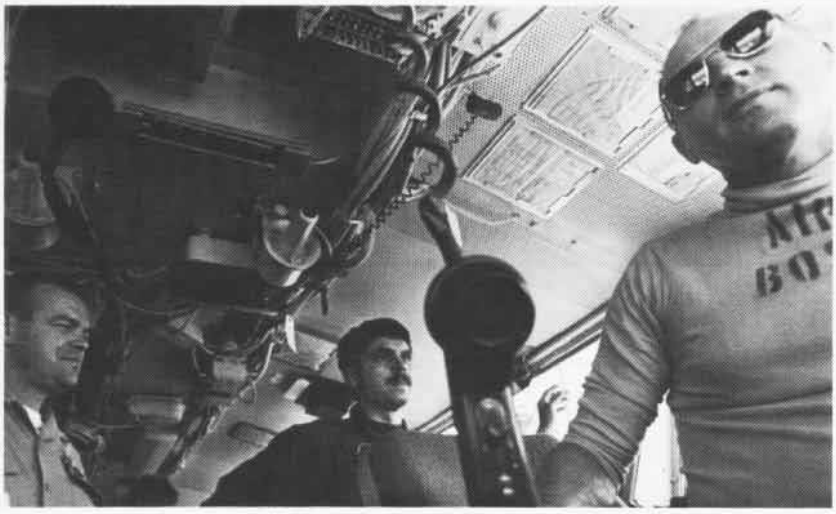
CVWR-30 units were VFs 301 and 302, Miramar, Calif., and VAQ-308 Alameda. *Corsair*-flying squadrons VAs 303 and 304, also from Alameda, and VA-305 from Point Mugu completed their goals in late May aboard USS *Lexington*.

The Honorable Will Hill Tankersley, Deputy Assistant Secretary of Defense for Reserve Affairs, and Rear Admiral Thomas B. Russell, Jr., Commander, Naval Air Reserve Force, were among the exercise observers who watched and evaluated the capabilities of naval air reserve forces.

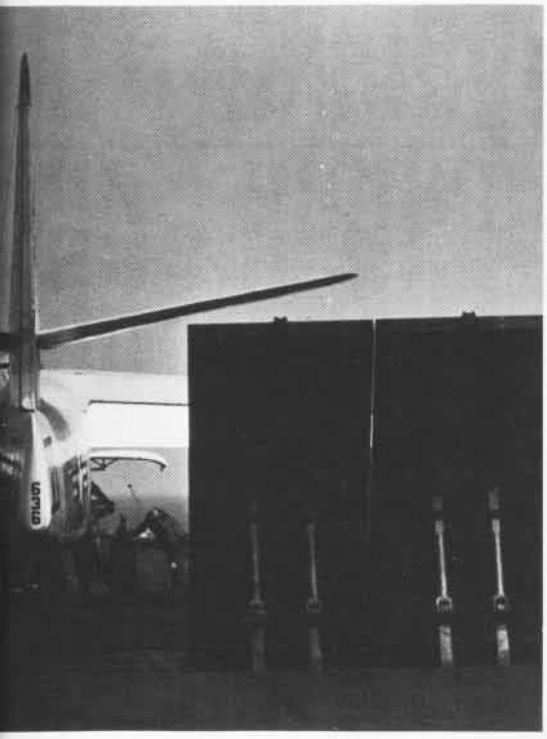




Above right, members of the wings and the ship's V-1 division check the action as CVWRs 20 and 30 carqual. At right, a VAQ-308 Skywarrior is prepared for cat shot.



Above left, a VA-205 Skyhawk comes aboard Sara. AT2 W. F Lynes, Jr., VAQ-208, performs preflight on a squadron Skywarrior, above. Cdr. Dick Kiehl, CAG-20, Lt. Scottie Atkins, VAQ-208, and Sara's air boss, Cdr. Dale C. Purdy, observe flight ops, left. The scene below was repeated many times as the two wings counted 684 arrested landings.



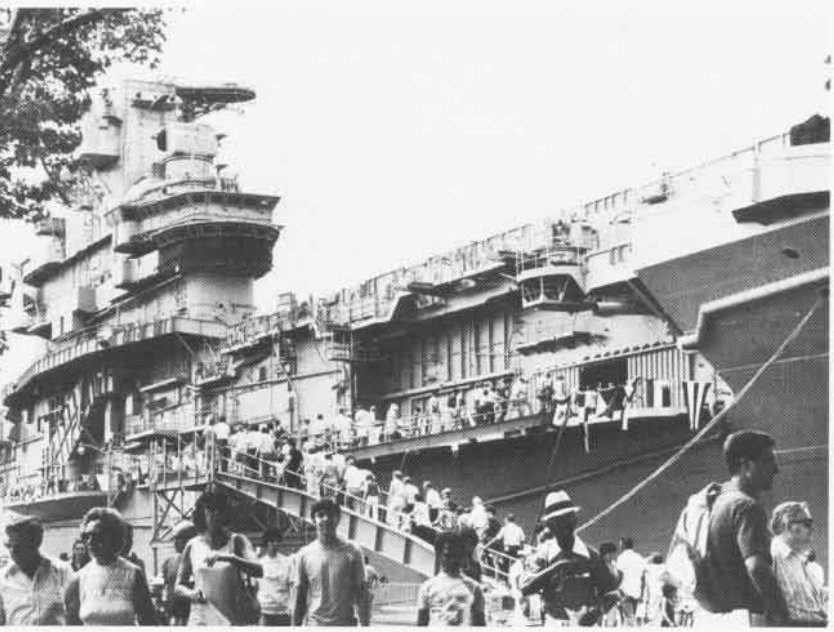
After being nosed through the lift bridge gateway, the aircraft carrier USS *Intrepid* is residing at the Philadelphia Naval Base reserve basin as one of the Navy's Bicentennial showcases.

The carrier's hangar deck, 600 feet long and 150 feet wide, is now a major exhibit center filled with displays illustrating the history of the Navy since its birth at Carpenters' Hall, Philadelphia, Pa., on October 13, 1775.

Photographic displays, multimedia presentations, dioramas and models show propulsion systems from sail to nuclear power, submarine development, oceanography and Marine uniforms since 1775.

The story of Naval Aviation is told with photographs, scale models and historical aircraft in a panorama portraying 65 years of research and development. The Navy's part in space technology, flights, training and moon landing and recovery techniques is covered, along with specialized ratings and occupations.

The oldest naval quarters on the base, Quarters A, built during the Centennial in 1875, is being reconditioned and will be permanently established as a Navy Historical Museum with artifacts, paintings, photographs and period furniture.



The Marine Corps, born in Philadelphia on November 10, 1775, will rebuild its Tun Tavern birthplace and has erected naval base walking-tour displays of tanks, artillery and aircraft for public viewing each Friday, Saturday and Sunday throughout the summer. The Corps is also holding band concerts on the base's Marine Parade Grounds before its precision marching units perform in a sunset parade and flag pageant.

The retired ship has been on display since July 4 and will remain open to the public (from 2 P.M. Friday to Sunday evening) until October 13, 1975. After that date exhibit days may be altered. *Intrepid* will remain as a showcase through December 30, 1976.

Changes of command:

VXN-8, Patuxent River: Cdr. Thomas J. Kirkland III relieved Cdr. Richard A. Winter.

VC-1, Barbers Point: Cdr. Craig L. Barnum relieved Cdr. Glen E. Simerly.

CVW-9, Lemoore: Cdr. Hugh F. Lynch relieved Capt. James M. Seely.

VP-19, Moffett Field: Cdr. Keith J. Frederick relieved Cdr. Carl Leban.

VP-11, Rota: LCdr. Robert L. Prehn relieved Cdr. Josef S. Kuckelkorn.

Marine Corps Bases, Eastern Area, and MCAS Cherry Point: MGen. Victor Armstrong relieved MGen. R. H. Spanjer.

USS *Coral Sea,* at Alameda: Capt. Joseph F. Frick relieved Capt. Thomas S. Rogers, Jr.

NARU Jacksonville: Capt. John A. Chalbeck relieved Capt. Charles D. Gilpin, now retired.

Light Attack Weapons School, Pacific, Lemoore: Cdr. Hart J. Schwarzenbach, Jr., relieved Cdr. Gary W. Lubbers.

MARTD/MAG-49, Willow Grove: Lt. Col. Marvin T. Garrison relieved Col. F. K. Fulton.

RAdm. William L. Harris, Jr. has relieved RAdm. Robert P. Coogan as Commander, Attack Carrier Striking Force Seventh Fleet and ComCarGru 5.

USS *Lexington,* Pensacola: Capt. Thornwell F. Rush relieved Capt. Donald E. Moore.

MAG-46 and MARTD, El Toro: Lt. Col. Kenneth H. Wilcox relieved Col. J. K. Davis.

Naval Air Technical Services Facility, Philadelphia: Cdr. J. G. Wurth relieved Cdr. Wendell W. Powell. Cdr. Powell has been assigned as X.O. of NARF Norfolk.

Two Navy Pilots competed in this year's Powder Puff Derby, the official all-woman transcontinental air race from Riverside, Calif., to Boyne Falls, Mich. Lieutenants junior grade Rosemary Conatser and Joellen Drag were the first military entrants in the history of the event, and were among the participants who completed the race.

Ltjg. Conatser is assigned to VC-2 at NAS Oceana where she flies S-2 *Trackers.* Ltjg. Drag of HC-3 flies H-46 *Sea Knights* out of NAS North Island.

TD1 Ike Shrum, the last active-duty training devicesman in the naval reserve, retired in July. For the past two years the reserves have been converting the TD rate into civil service jobs. Shrum was the last of a long line of men who helped train aircrewmen and pilots for duty in reserve aircraft.

A P-3 from VP-31 left Moffett Field on a routine cross-country training flight. While the aircraft was over the Great Salt Flats of northern Utah, sensor station three operator sounded the familiar MAD. . .MAD. . .MAD, which indicates the location of an underwater intruder. How can you get a MAD reading over an arid region? Answer: VP-31's AW1 James A. Butner drew on his experience in ASW warfare to create a magnetic anomaly detector signal simulator. The "submarine in a box," while awaiting Navy-wide approval, has proved its value in local testing and has brought AW1 Butner several cash awards.

The Naval Weapons Evaluation Facility, commanded by Capt. Ronald H. Caldwell, completed its seventh year of accident-free flying in June. During this period the facility logged more than 16,000 hours in both conventional and jet aircraft. It is located on one-mile-high Kirtland AFB in New Mexico.

A pilot from the NS Roosevelt Roads air operations department and three members of VC-8 were commended recently for a successful rescue mission. Flying an SH-3 *Sea King,* the men rescued a Puerto Rican woman clinging to a partially submerged rock 200 yards offshore. She had managed to reach the rock when the sailboat she was in capsized. She was in shock when the crew hoisted her to safety in total darkness. Lt. Steve Joca and AE2 Don Morris received Air Medals, Ens. Steve Sanders and ADJ3 J. Anderson, Letters of Commendation.

F-4J *Phantoms* of VF-101 carry a new tail design created by AQ1 Theodore Chelgren in recognition of the Bicentennial. The *Grim Reapers* have provided replacement

pilots and RIOs to Atlantic Fleet fighter squadrons for 15 years. VF-101 is based at NAS Oceana with a detachment at Key West. Operational control is assigned to Commander, Fighter Wing One.

The Fleet Material Support Office (FMSO) at Mechanicsburg, Pa., has developed a new system to provide timely maintenance information to fleet managers. Instead of getting 3M reports from FMSO's Maintenance Support Office Department, managers can now go directly to the computer for the information they want. The computer data base management system comes up with answers almost as fast as the questions are asked. Decisions affecting aircraft safety, combat readiness and money expenditures will be based on analysis of the data, which is the most current information available.

Lt. Paul B. Schlein, a Naval Flight Officer, has received the 1975 Admiral William A. Moffett Award which is given annually to the outstanding graduate of the Naval Postgraduate School's aeronautics curricula. The award was presented by Adm. Moffett's son, RAdm. William A. Moffett, Jr., USN (Ret.), at the June graduation ceremony.

Navy Flies For Fire Film

Naval Aviation has starred in one of the biggest disaster spectacles of recent years. An NAS Lemoore search and rescue team flying a twin-engine UH-1N *Huey* made a daring attempt to rescue Hollywood's biggest stars from atop *The Towering Inferno.*

When a fire breaks out on the 81st floor of the world's largest skyscraper, the Lemoore, Calif., helicopter speeds to the rescue but crashes in the attempt.

The pilot of *Angel 1* in the movie, LCdr. Norman Hicks, says, "The most important thing in our real-life business is to complete the mission. Even in the film, we were giving lives to save lives."

The senior SAR pilot and veteran of 12 missions since coming to Lemoore a year ago, also says, "If it had been a real mission, I'd have used a different procedure. We would get the job done and with less risk to everyone."

But the producer of the $12-million film epic told him, "I don't know anything about flying helicopters and you don't know anything about making movies. We should get along fine."

The entire SAR crew got along fine with such stars as Steve McQueen, Paul Newman, Faye Dunaway, Fred Astaire, William Holden, Jennifer Jones, Richard Chamberlain, Robert Wagner and Robert Vaughn. LCdr. Hicks even married an "extra" from the *Inferno* film set.

Now he wants an engraved brass plate, with names of all the SAR team in the movie, placed in *Angel 1.* The helo is now back on duty at the air station.

Although Norman Hicks felt the movie's portrayal of the Navy as rescuer was beneficial to the image of the service, the helicopter footage wasn't shot at the taxpayer's expense. The Navy billed 20th Century-Fox for "complete flight hours on one UH-1N helicopter and per diem for each member of the six-man crew."

Lt. Tom Carnahan received film credit as *Angel 1's* copilot. PR2 Andy Anderson was first crewman and ADJ2 Mike Fox was the second crewman.

The assistant air operations officer at NAS Lemoore, LCdr. Graham Hicks, and AE2 Paul Ridenour, maintenance control petty officer, were off-camera, behind the scenes as special production assistants.

No relation to "Stormin' Norman" the pilot, LCdr. Graham Hicks received his biggest thrill while he was directing the Lemoore helicopter. "I nearly got killed when a brass-weighted messenger line fired from a shotgun missed me by six inches."

Photos by LCdr. Graham Hicks

Jennifer Jones hurtles, screaming, down a breeches buoy to the Peerless Building in a night rescue attempt, above. All the rescue and disaster scenes were filmed from nine at night until six in the morning. Angel 1, upper right, received a paint job from the studio crew. The rubberized paint provided the contrast for night shots, then peeled right off after filming. The wood and paper mockup of Angel 1, center right, was blown up during filming of the Navy's rescue attempt from the Towering Inferno, bottom right.

THE PHOTOGRAPHER'S MATE

By Bob Moore

While Abraham Lincoln was saving the Union, Matthew Brady was preserving the war. When this celebrated Civil War photographer stood on the deck of the ironclad *Monitor* in 1862, exposing the first photographic plate for the U.S. Navy, he began a chronology of naval photography and photographers.

Though aircraft entered the Navy in 1911, aviation-related photography was haphazard until the winter of 1915. It was then that Walter L. Richardson began taking pictures of various operations at the Pensacola flight school. Richardson's work was so impressive he was designated the Navy's first official photographer. His cigar-box camera and broom-closet darkroom turned from a hobby into a full-time job when he was directed to organize a division of photography at the Naval Observatory. He was soon put in charge.

"Dick" Richardson had enlisted as a ship's cook fourth class in November 1911. He shot pictures aboard USS *Birmingham* at Vera Cruz during the Mexican crisis in 1914 and later became a chief machinist's mate. He was commissioned an ensign in the Naval Reserve Flying Corps in January 1918, and designated Naval Aviator #582 in April of that year. This "daddy of naval photography" invented the first hand-held oblique aerial camera and headed the first Navy photographic school.

In 1918, a photography school for printers and machinist's mates was established at NAS Miami, Florida. A year later, photography school graduate L.E. Goodnight, on the destroyer *Harding*, photographed the NC-3 landing 200 miles from Ponta Delgada, Azores. The new school closed with the signing of the armistice but another school soon opened at NAS Anacostia, D.C., in January 1920.

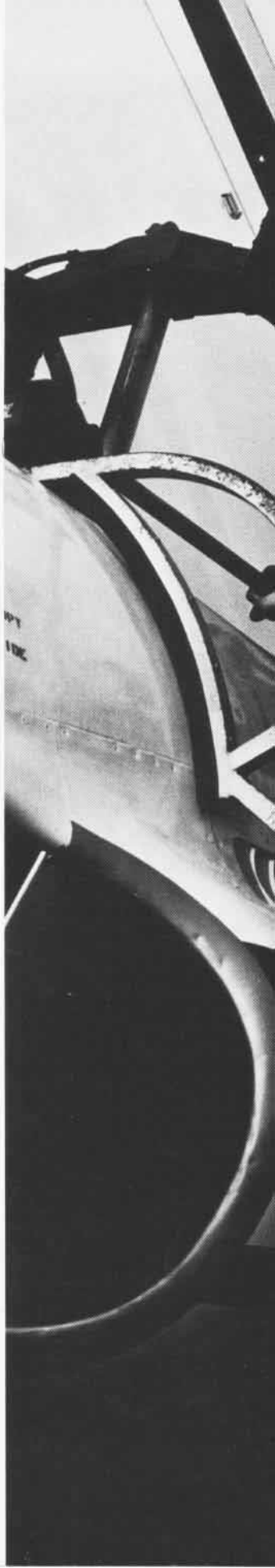
The photographer rating was established in 1921, but it would change to Photographer's Mate in 1942. The rating split into Photographer's Mate and Aviation Photographer's Mate in 1948, before being recombined in 1952.

The Navy's photography school moved to its present location at NAS Pensacola, Fla., in 1923. Twelve men were graduated twice yearly and the entire photographic division had only 250 men.

In 1925, Lt. Richardson was taking pictures from *Shenandoah*, riding aft with 18 others when the airship crashed over Ohio. Richardson described being ". . . flung about like dice in a cup. The fall to earth seemed endless!"

In 1926, Lt. Ben Wyatt led the first aerial photographic survey of Alaska in a three-place amphibian OL-4. Chief Goodnight assembled the Navy's first photographic textbook in 1927. The second Alaska survey was photographed by Lt. Arthur W. Radford flying an OL-8A in 1929. This was the same Radford who would become Chairman of the Joint Chiefs of Staff.

During the Thirties, Navy photographers began to work with smaller cameras and larger film holders. Color



ENLISTED RATING SERIES

film became a reality and night aerial photography a possibility. An aerial strip camera was on the drawing board and aircraft carriers were making provisions for photographic laboratories.

In 1934, in the midst of the depression, training for Photographer's Mates was terminated for a year due to lack of funds. But training expanded with World War II and the school became a unit of the Naval Air Technical Training Command in 1943.

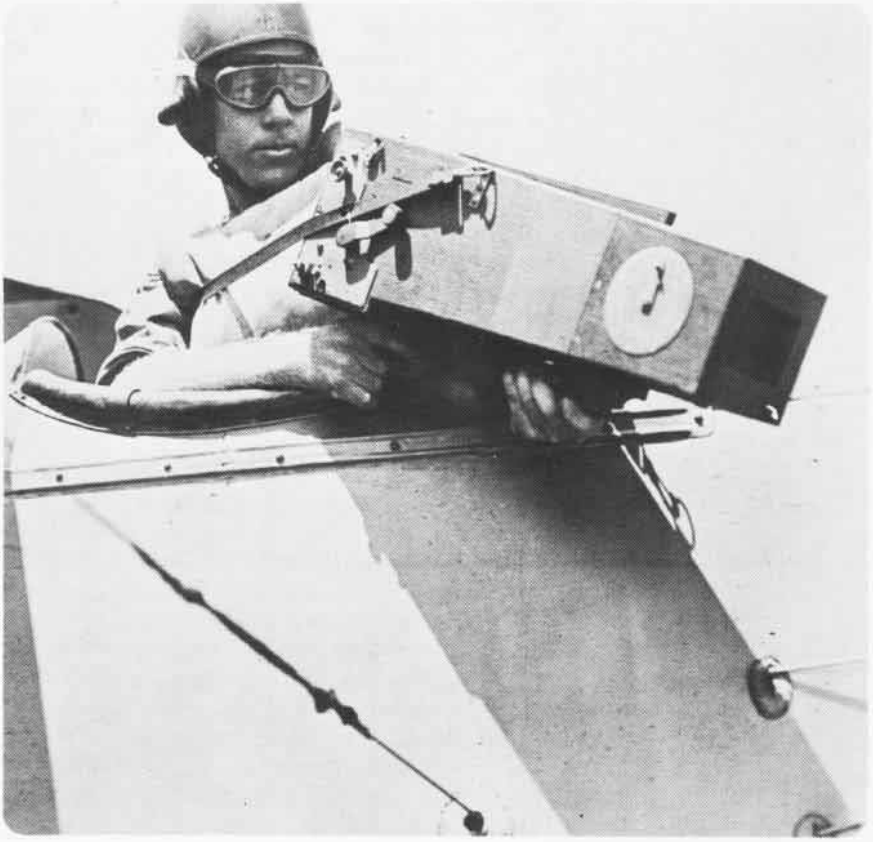
Photographer's Mates (PHs) recorded the early WW II victories in the Pacific, working in the hot, humid tropics to prepare for pre-invasion reconnaissance missions. Operating from forward bases on Guam, Saipan and Eniwetok, four photographic squadrons flew PB4Ys to map enemy islands. In the Atlantic, a fleet camera party using photographs trained ship gunnery crews while Photographic Squadron Two caught German submarines on film.

L. E. Goodnight became the first photographic warrant officer in 1942. A year later specialized training for PHs was expanded with Class A, B and C school instruction under the command of Lt. Goodnight and a large Class B lab was built at NAS Norfolk.

After WW II, peace brought new photographic exploration of some old frontiers. Navy photographers documented the 1946 atom bomb blast on Bikini Atoll and Rear Admiral Richard E. Byrd led a task group to photograph Antarctica from the aircraft carrier *Philippine Sea.*

Many PHs were recalled to active

Chief Printer (Aviation) Lyman E. Goodnight instructs students with the 8x10 view camera at the Anacostia Naval School of Photography in 1920.



Ltjg. Richardson used this Eastman Kodak A-1 aerial camera aloft in 1919.

duty during the Korean War as naval photography grew rapidly for the next decade. Better training and more specialization were required for the jet-age Fifties. More sophisticated shooting and processing systems were being developed for PHs as their cameras and film format became even smaller and more versatile. The groundwork was laid for two combat camera groups. The Navy established its advanced school of photography and aerial units were divided into reconnaissance and mapping squadrons.

PHs documented the International Geophysical Year in 1954 and continued the work as Operation Deep Freeze. Lieutenant Colonel John Glenn, USMC, set a speed record flying the Navy's newest reconnaissance plane, the F8U-1P *Crusader*, cross-country in 1956. A quality control course was set up at the Rochester Institute of Technology as 3,000 PHs manned 210 labs afloat and 310 ashore.

In the space-age Sixties, Syracuse University trained Navy photojournalists and the University of Southern California trained cinematographers. The Navy still trained its own photographers at Pensacola, but the four-month program of WW II had been broken into shorter, more specialized courses.

Navy C School taught camera repair, reconnaissance systems, maintenance and motion-picture technique. Navy B School took trainees deeper into technological advances like roller-transport processors and the high-speed, high-definition films, which helped the Navy discover the Cuban missile bases in 1962. PHs also helped find the nuclear submarine *Thresher*, sunk off Boston, by using towed camera-arrays to locate the wreckage a mile below the ocean's surface.

Naval reconnaissance became more complex with the arrival of the RA-5 *Vigilante* and thousands of photographic missions were launched over Vietnam during the Seventies. Combat camera groups documented the war in-country, from the air and on ships in the Tonkin Gulf. Captain Edward Steichen, of WW II fame and one the world's most distinguished photographers, returned to lead a band of Navy photojournalists, taking pictures of everything from jets to junks.

Wartime photography provided the means of obtaining and transmitting timely, reliable intelligence data on the strength and disposition of enemy troops, airfields and missile sites. Navy peacetime photography continues to play an important role in science, medicine and historic documentation.

Formation of a new Atlantic Fleet Audio-Visual Command on July 1 of this year, brought together, for the first time, a full range of PH talent covering aerial and motion picture photography, color and black-and-white printing and processing, triangulation, intelligence and underwater photography. This new command also has an audio-visual section to produce multimedia presentations and soon will have the television capability to produce closed-circuit programs for the fleet.

The Navy School of Photography now provides training at three levels. The first prepares a trainee in camera operation, processing and printing, photojournalism, quality control and cinematography.

Level two includes everything from

PHs aboard Langley (CV-1) take motion pictures to test and evaluate carrier catapults and arresting gear in 1924.

The first enlisted man to win the Navy Distinguished Flying Cross, PH1 Joseph Pelter, stands by a T4M at NAS San Diego in 1931. Pelter was the official PH with RAdm. Byrd's second Antarctic Expedition two years later in 1933.

In 1950, VC-61 had six types of photographic planes — top to bottom, the PB4Y-1P, SNB-5, F4U-4P, F6F-5P, F8F-2P and the F9F-2P.

laboratory management to audio-visual production. The PH at this level may elect to receive training in any or all of seven specialized areas.

Level three includes scriptwriting, editing and shooting, and results in a Navy enlisted classification of PH-8143 — Motion Picture Cameraman. Graduates of the third level equipment repair course are assigned a PH-8192 NEC and detailed to jobs requiring this special skill.

Regardless of special classifications, the PH must learn to cope. A Photographer's Mate must be expert at handling subjects, lighting, film, lenses, filters, chemicals, cameras and laboratory equipment.

He may fly in a reconnaissance aircraft or shoot pictures through the periscope of a submarine. As a member of a combat camera group he could photograph amphibious assault or battlefield action. Assigned as a public affairs photographer, he would supply pictures for hometown newspapers, film a TV show, or join a motion-picture production crew.

Whatever his job, the Photographer's Mate stretches his talent and sharpens his technique, knowing that the most important element of naval photography is still behind his camera.

Capt. Edward Steichen, world-renowned photographer, organized Navy combat pictorial units in World War II, at age 62.

Film is taken from an RF-8 by a PH rushing to a special processing lab aboard Hancock.

Twenty on the Wing

Attack Carrier Air Wing 20 was established on April 1, 1970, at NAS Jacksonville, Fla., as part of the reorganization of the Naval Air Reserve. An important requirement of the reorganization was the training of squadrons for mobilization as complete units with men, aircraft and equipment ready for immediate assignment to an attack carrier. This has been achieved.

Today, CVWR-20, under Commander R. L. Kiehl, has eight reserve force squadrons and an air wing staff, 82 aircraft and nearly 1,300 personnel, located in seven states. VFs 201 and 202 fly out of NAS Dallas, Texas; VA-203 is based at Jacksonville, Fla.; VA-204 operates from NAS Memphis, Tenn.; VA-205 is at NAS Atlanta, Ga.; VFP-206 flies out of NAF Andrews near Washington, D.C.; VAW-207, operates at Norfolk, Va.; and VAQ-208 is at Alameda, Calif.

The fighter squadrons fly F-8H *Crusaders*, the attack squadrons operate A-7A *Corsair IIs* and A-4L *Skyhawks*. The A-4s are being replaced by A-7As. Photo intelligence, airborne early warning and aerial refueling are accomplished with RF-8G *Crusaders*, E-1B *Trackers* and KA-3B *Skywarriors*.

In most respects, CVWR-20 is identical to a fleet air wing. The main difference is that more than half of its personnel are civilians for about ten months of the year. The commander and most of his staff are active duty regular Navy or TAR personnel. Squadron C.O.s and most squadron pilots are naval reservists. About 45 percent of the enlisted force are active duty TAR personnel. The remainder are drilling reservists. In order to maintain peak proficiency, reserve pilots are authorized 120 drills a year in addition to 28 days of AcDuTra. The active duty cadre of each squadron, under an officer in charge, maintains assigned aircraft in peak condition and handles the administrative routine.

Between active-duty cruises each year, the fighter and attack squadrons conduct special weapons deployments and receive thorough operational readiness evaluations. Three times a year one-third of the pilots and support personnel assemble at Cecil Field for a "Cecil Gaggle"- coordinated air wing and special mission training.

CVWR-20 conducted an exercise aboard *Saratoga* in June, in which 107 air wing pilots renewed their carrier qualifications, making over 650 arrested landings. Cdr. Kiehl, in fact, made *Saratoga's* 189,000th trap.

In September elements of CVWR-20 will deploy, for their second sojourn, to Canadian Air Force Base Cold Lake, Alberta, for a six-day dissimilar air combat maneuvering exercise with F-104 fighters of Canada's 417 Tactical Fighter Squadron.

CVWR-20 plays a vital role in the Navy's total force concept. Its central goal is to remain prepared to augment fleet units when needed.

FLYING RECRUITERS

Early this year, 68 Naval Aviators representing each of the nation's recruiting districts and several reserve training units, gathered at VT-1, NAS Saufley Field, Fla. The purpose of the Second Annual Recruiter Safety Symposium was to reiterate and discuss safe operating procedures applicable to the T-34B, which is as much the workhorse of aviation recruiting as it is of primary flight training. Organized and conducted by LCdr. Lyn Hudson, VT-1's safety officer, the safety symposium covered a wide variety of topics, including emergency procedures, cold-weather and mountain flying, and the legal ramifications of flying with aviation candidates. Keynote speaker was Captain Paul H. Engel, Commander, Training Air Wing Six, who stressed the goals of sustained safety and Natops awareness.

For the recruiters, the search for Naval Aviators usually begins with a visit to a college campus. The officer information team sets up shop in the student union or other appropriate location. It provides literature and explains programs to those interested.

If a student is interested, the next step is to set up an appointment for him (or her) to take the basic aviation qualification test. The test determines eligibility and is required before a flight demonstration can be arranged.

Although most applicants have flown at least once in some type of aircraft, experience ranges from those who have never flown to those who possess a valid air transport rating.

Arriving for the flight, the applicant goes through a safety equipment and emergency procedures briefing. Then it's strap-in, start, tower clearance, and the T-34 is soon airborne.

The pilot looks for several things during the flight. While he goes through a series of aerobatic maneuvers including loops, wing overs, barrel rolls, half Cuban eights and Immelmanns, he notes positive indicators from the applicant, such as questions about the maneuvers or instrumentation, and general enthusiasm for the flight. He also observes negative indicators – a low tolerance for motion sickness or fright. If any of the latter signs appear, the pilot may choose to terminate the flight. The flight demo helps the pilot assess the applicant's motivation and dedication and, hopefully, eliminates later unnecessary expense.

If the applicant is still enthusiastic following the sortie, he may then submit an application, go through a physical screening, and be interviewed by two officers. The application, with references, interview results and other checks, is submitted to the Commander, Navy Recruiting Command for selection or rejection.

Selection means a trip to Pensacola. While there, the applicant is shown around the base and civilian community and is given a flight physical – the final determination of eligibility. Once past the physical, the applicant is scheduled for a class date at Aviation Officer Candidate School.

When used as a screening device for Naval Aviation programs, the T-34 trainer changes sometimes vague ideas into concrete concepts for prospective Naval Aviators. The candidate selection process includes initial contact, testing, flight demonstration, submission of paper work, orientation visit and assignment of a school date.

Each navy recruiting district staff includes two operational flying billets. Not only must the aviator/recruiter be able to explain aviation programs to interested prospects, but he must also be knowledgeable about all other officer programs. He is also a public affairs officer and a public speaker.

A tour in aviation recruiting affords the junior aviator many benefits and it expands his aviation experience. His assignment is designated a "seat factor" billet. The months spent in the recruiting command are credited toward "gate time" for flight pay purposes. The recruiter works with civilian maintenance men, and with local FAA officials.

Whether recruiters fly the T-34 out of Denver, Colo., or Fargo, N.D., the purpose is the same — search for Naval Aviators.

Commander S. P. Halle III, Commanding Officer, Navy Recruiting District, Fargo, N.D., says his primary concern is the implementation of active Natops and safety programs for the flying recruiter. "We attempt to operate just as any fleet squadron. Our program requires a Natops check every six months and periodic aviation safety seminars are scheduled. Every recruiting command aviator is extremely concerned about the safety of applicant passengers. We operate in a highly visible environment and a professional attitude is essential."

From the Navy education aspect, the recruiter flying the T-34 functions as a flight officer, schedules officer, maintenance officer, quality assurance officer, post maintenance check pilot, etc. He keeps busy.

NAVAL AVIATION NEWS letters

Hang it Up

Shades of St. Barbara (Patron Saint of the Ordnanceman) re your April 1975 profile on aviation ordnancemen, page 10. This is a brute-type job that has landed more than its share of Navy men in hospitals or has at least presented them with reason enough to display their hernia papers as testimony of their back-breaking job! We at the Naval Air Engineering Center, Lakehurst, N.J., hope to see less and less of this type lift; in fact, this is the sort of thing that lent impetus to the single hoist ordnance loading system (SHOLS) as featured in your April 1973 cover story. Although SHOLs is best shown in raising pre-configured MERs and TERs, the single store, 1,000 to 2,000-pound lift is enough to wipe the grunt-and-groan expression from the face of any ordnanceman. Aircraft carriers are being modernized to handle the pre-configured concept and SHOLS is catching on.

Yep! Your picture on page 15 may attest to the virility of the ordnanceman, but we say, "Hang it up!" Go SHOLS and save your strength for liberty.

Joseph P. Ruggeri
IRR Dep Project Office
NAEC Lakehurst, N.J. 08733

Duralim

Mr. Malloy's article on corrosion in the May 1975 issue of *Naval Aviation News* jogged my memory. Thought you might be interested in the following:

With the construction of USS *Shenandoah* using the aluminum alloy duralumin, a new metal industry was born. The alloy, developed by Dr. Wilm in Germany and used extensively for Zeppelin construction in Europe, was the main structural metal of the airship. It required processing and fabrication unfamiliar in this country. Unlike the heat treatment of low-alloy steel employed in naval aircraft fabricated fittings, as in the NC-4-type flying boats, duralumin required a special heat treatment and aging processing. When heated to approximately 1,000 degrees F. and quenched in cold water it was still soft and could be shaped into various forms. It then required about four days to age and harden to develop a maximum tensile strength of 55,000 psi and an elongation of six to eight percent. This novel process required strict metallurgical laboratory technical control and experienced personnel. Duralumin later replaced marine plywood in the construction of PN-type flying boats. The cabinet and woodworkers became more skilled in forming the duralumin than the metalsmiths with resultant fewer scratches and hammer marks.

Duralumin was widely used in Naval Aviation, for example, in the construction of catapult "launching cars." Salt-water corrosion became a problem as noted in Mr. Malloy's article. Adequate surface protection was necessary. Anodic oxidation of aluminum alloy aided in resisting corrosion and provided an excellent base for protective coatings. The first anodic chromic acid installation was made at the Naval Aircraft Factory, Philadelphia, Pa., in July 1927 where all alloy parts were anodized prior to the application of the anodic treatment.

I performed the experimental work on the heat treatment and anodic oxidation of aluminum alloy at the Naval Aircraft Factory from 1919 to 1927.

Harry J. Huester, Cdr., USN (Ret.)
4621 N. 36th Street
Arlington, Va. 22207

F-86F

In the May issue of *Naval Aviation News* there appeared a photo by Clay Jansson of John Glenn's F-86F, serial No. 52-4584, which Glenn flew in the Korean War. Here is a photo by Harold B. Caldwell which is also an F-86F that John Glenn flew in Korea. And since the F-86F in this photo is an earlier aircraft, serial No. 51-12951, I believe this is the aircraft that Glenn flew in combat and shot down three Mig-15s with. Although it does not show in the photo, a name appears with each Mig kill on the fuselage,

"Barcus," "Carcus" and "Oh! Very Well." This photo was taken at K-3 Korea in July 1953. Any information you or your readers can give on this aircraft will be appreciated.

Ron Picciani
Picciani Aircraft Slides
434 Arbutus Ave.
Horsham, Pa. 19044

Vigilantes

A family picnic for Washington, D.C., area members of the RA-5C community will be held September 14. More information may be obtained by contacting Lt. John Erskine, autovon 293-1542, home 301-952-1019.

History

I am endeavoring to write a history of the U.S. Third Air Force and, although not strictly Navy business, there is a naval air facility at a USAF base in England. Therefore I intend to include a section on U.S. naval air operations in England since 1948.

I would like to hear from any U.S. Navy personnel who have served or are serving in England as part of an air facility, either permanently or on detachment. Alternatively I would like to hear from any aviation historians who have an interest in U.S. naval air operations in England since 1948.

Keith D. Wallis
38 Graystone Rd.
Tankerton
Nr. Whitstable
Kent, England, CT5 2JX

Helicopter Antisubmarine Wing One.....Jacksonville, Fla.

Fighter Wing One.....Oceana, Va.

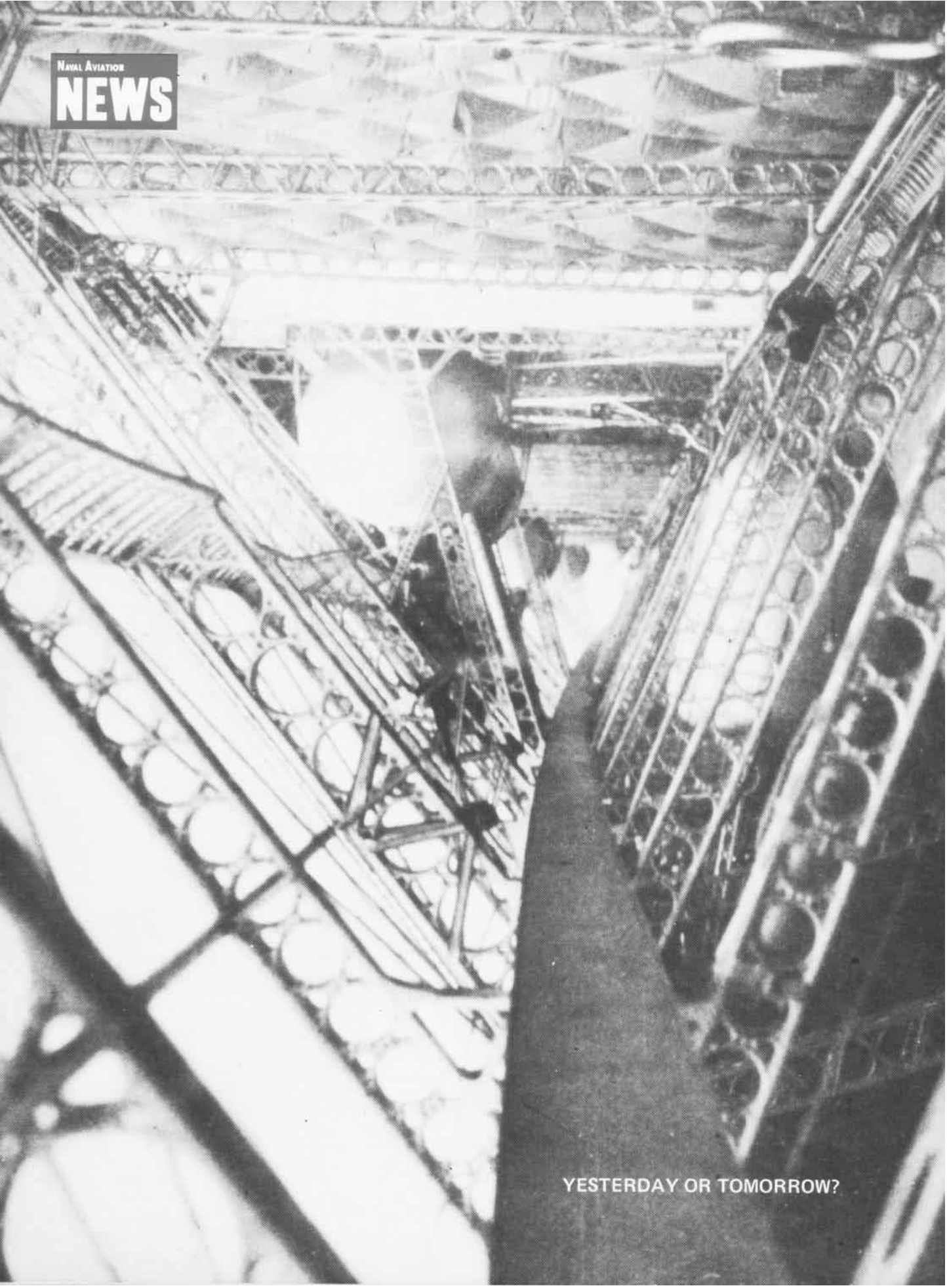
Air Antisubmarine Wing One.....Cecil Field, Fla.

Medium Attack Wing One.....Oceana, Va.

Light Attack Wing One.....Cecil Field, Fla.

Fighter/Airborne Early Warning Wing Pacific...Miramar, Calif.

NAVAL AVIATION
NEWS



YESTERDAY OR TOMORROW?