

NAVAL AVIATION

NEWS

*In this issue / NavAirSysCom
Field Activities*

SEPTEMBER 1971



TESTS FOR THE TOMCAT

The F-14A Tomcat has been carrying out a series of successful test flights which include mirror landing system approaches to touchdown, low speed performance checks and inflight refueling studies. The photograph above was made during one of five such refuelings. The Tomcat is scheduled to become the Navy's next air superiority fighter, joining the fleet in the mid-Seventies.

NAVAL AVIATION NEWS

FIFTY-SECOND YEAR OF PUBLICATION

Vice Admiral Thomas F. Connolly

Deputy Chief of Naval Operations (Air Warfare)

Rear Admiral William R. McClendon

Assistant Deputy Chief of Naval Operations (Air Warfare)

Major General H. S. Hill, USMC

Assistant Deputy Chief of Naval Operations (Marine Aviation)

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COVERS

The camera of W. R. Curtsinger caught the Corsair on the front cover. The photograph of the F-14 refueling from a KA-6D, left, is a Grumann picture. On the back, PHC B. M. Andersen shot a VRC-40 pilot sizing-up Franklin D. Roosevelt.

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It Ain't Easy

There is a song entitled "It Ain't Easy" and we know it well. At times it could be our theme song. With a staff of only six to put NANews together, we are, at best, hard pressed to send members into workday Naval Aviation.

But occasionally we manage. A while back, during a general gripe-bull-planning session, we made two discoveries: there was an unusual lack of features coming in from the field, and we had a few dollars available in the TAD fund.

We set about to rectify the situation immediately. Associate editors JOC Dick Benjamin and Mike McDonnell had recently affected green eyeshades and black cheroots and the nasty habit of yelling, "Hold the presses," while staring out the window. Runyonesque editors we didn't need. We needed to "dig up" several stories, establish sure leads to others, and promote new contacts. Guess who got the job!

NAS Oceana and FAAWC Dam Neck, Va., were selected as the areas of operation. Allotted time — three days.

Replete with cameras, tape recorder and notebooks, the dauntless duo set out from Washington, assuring those left behind that the mission would be "a piece of cake."

The drive to NAS Oceana was uneventful, and they checked in at the station PAO where their egos were boosted by VIP treatment.

Anticipating the arrival of NANews staffers, the PAO had a list of subjects designed to tempt the most discriminating journalistic imagination. The two read the list like a Chinese menu, selecting three items. With half a workday still remaining, they elected to get one story done before the sun set.

The plane captain is often overlooked; it was time to blow the horn for this worthy and essential member of Naval Aviation. The PAO called a VF squadron and the plane captain assigned turned out to be a winner. Highly photogenic and with an easy down-home Georgia drawl he explained his job in an honest, candid manner. After taking several photos of the young airman, the two staff writers thanked their stars for the extraordinary good luck in bagging the story — so effortlessly.

Their thanks were premature. As they walked by a nearby F-4, they casually read a sign: "Warning, Radiation." They felt a cold rush of fear and it turned out that several artfully composed pictures had already been obliterated.

The second day, bright, hot and cloudless, was dedicated to a story on the East Coast A-6 RAG.

Interviews were lively, filled with colorful anecdotes of men who enjoy their profession. Mike and Dick postponed the inevitable walk out to the line in the blistering sunshine, preferring the comfort of the relative coolness in the squadron's hangar. When, late in the day, the journey could be postponed no longer, they headed for a group of students working on an A-6 — to get the last bit of material with which to build a feature.

They had just begun to question and photograph the men when a spot weather bulletin was announced over the PA system: "Heavy storm front approaching."

The storm clouds appeared far enough away to allow 15 more minutes of intensive endeavor, but not so. Within a few minutes the skies opened up and baseball-sized rain drops drove the group under the protective wing of a nearby intruder. Unintimidated, Dick continued to click his camera as his partner gathered caption material.

After the deluge, the waning sunlight signaled the sun's daily demise and our hapless hacks were forced to double time to gather that last bit of information, that final shot before the day was done.

The much anticipated and final day was spent at the beach. A drone shoot was scheduled at FAAWTC Dam Neck, a short drive down a country road from NAS Oceana. In the launch area, the two were met by the OinC.

The shattering whine of turbines made the introduction difficult to hear, but they understood they were to turn off the black top and proceed between two lines of sand dunes. Hearing the term "hard surface," and assuming there was a hard surface on which to park, Dick turned Ruby Begonia, his wander Chevy, off the black top. The further they drove, the slower the car moved, finally stopping dead in the sand.

Their assorted remarks ceased immediately when a great silver amphibious vehicle suddenly rolled in from the water on a collision course with the mishappened automobile — which just happened to be blocking the narrow route. After signaling and pleading with the amazed crew, the pair finally stopped the behemoth. Could they tow the Chevy out?

"No," replied a friendly Bos'n. They were hauling in a drone boat, but he would call for help. Five minutes later, the glittering monster's twin came roaring up and a tow chain hit the sand; Dick was offered the privilege of attaching the chain since the driver did not want to be held responsible. When Begonia was ready, Dick jumped in.

The silver beast bellowed and lurched off with Dick fish-tailing aft, yelling at the driver to halt at the black top. He finally did.

Mike also had problems with the same amphibious vehicle. Armed with a 180mm lens in one hand and a 50mm-mounted Leica in the other, he went out with the drone recovery force. With both his hands full and standing on an open deck when the powerful vehicle hit the surf, the News almost lost a bearded staffer and several hundred dollars' worth of camera gear, not to mention a potentially great offshore shot of a drone launch when the telephoto was hit by spray.

The moral of this story is that we know "it ain't easy," and we tip our hat to those in the field who make the effort to gather stories for NANews.

It ain't all problems either. Our two correspondents can verify that the cooperation received often goes above and beyond. As for story ideas, what seems common often is not — to the majority of our readers. The Naval Aviation community is large and diverse. It is a rare individual who knows about every squadron and aviation activity, past and present. We depend on you — keep the news, features and photos coming.



Single Base Concept is Announced

PENSACOLA, Fla. — A plan to cut costs and time to train jet Naval Aviators has been approved by the Chief of Naval Operations for implementation this fall. Announcement of the approval was made by CNATra.

A complex schedule of changes of personnel and aircraft is involved but there are no major dislocations in numbers of personnel at any of the bases involved. Naval air stations and squadrons at Pensacola, Fla., Meridian, Miss., and two Texas naval air stations, Chase Field and Kingsville, are involved.

Under the new training concept, the "single base" method, student aviators will require only one transfer after reporting to Pensacola for early indoctrination training.

Once assigned to a training syllabus, the student will report to his "single base" to take both his basic and advanced flight training. Savings will be effected by shortening each student's time to train and by eliminating the two transfers now required.

The first increment of the changes is for the jet training pipeline only.

Under the new plan, a three-way shift of planes and personnel began late this summer.

The period of transition, giving instructors an opportunity to adapt to their new training tasks without stopping the flow of students, is scheduled to be completed on or about January 1, 1974. The plan is designed to minimize personnel shifts.

When completed the air stations affected will have the following base compositions:

Kingsville: two basic squadrons flying

T-2C's; two advanced squadrons in TA-4J's

Chase Field: two basic squadrons in T-2C's; two advanced squadrons in TA-4J's, one with TF-9J's

Meridian: two basic squadrons in T-2B's; two advanced squadrons in TA-4J's

Pensacola: one basic in T-2C's; one advanced squadron in TF-9J's.

VXE-6 Gets New Huey

QUONSET POINT, R.I. — The first of six new twin-turbine UH-1N helicopters was received July 1 by Antarctic Development Squadron Six (VXE-6).

The Bell-made helos will be used

during the next *Deep Freeze* deployment in Antarctica in support of U.S. scientists working there with the National Science Foundation.

Prior to deployment, pilots and crews will train in the new *Hueys* at Quonset Point and at the UH-1N school at MCAS New River, N.C.

Four of the new helicopters will be delivered to Christchurch, New Zealand, by ocean carrier while two are to be transported by C-141 *Starlifters* of the U.S. Air Force's Military Airlift Command.

Prior to the start of *Deep Freeze '72*, all six helos will be at the task force's advance base complex in Christchurch and will be transported to the ice by *Starlifters* or ski-equipped LC-130 *Hercules* of VXE-6.

The UH-1N's are replacing the single engine UH-1D's and LH-34 *Seahorses* previously used on the ice.



Prototype of Navy's newest Orion features a large canoe radar on top and bottom of the aircraft and a ventral radome. Lockheed is converting ten P-3A's and two EP-3B's to the ECM EP-3E configuration. Total delivery of the new aircraft to VQ's 1 and 2 is scheduled for July 1972.

Marine Ace Examined

PENSACOLA, Fla. — A member of the President's Council on Physical Fitness, Medal of Honor winner, retired Marine Corps officer, ex-governor of South Dakota, and a man considered one of the most physically fit aviators in the "1,000 Aviators" program recently returned to NAS Pensacola to take his latest physical.

Joe Foss was an ace pilot in WW II. In 1942, from October 9 to November 19, during aerial combat over Guadalcanal, he single-handedly shot down 23 Japanese planes and severely damaged others. It was this heroic deed that won him the Medal of Honor. At that time he was a budding captain in the USMC reserve and executive officer of a Marine fighter squadron. Today he is Brigadier General Foss, USMC (Ret.).

Started in 1940, the physical fitness research program originally listed 1,056 23-year-old Navy and Marine Corps pilots as members. Since that time, the physical condition of every surviving member of the project has been recorded in detail.

CNAVanTra Sets Record

CORPUS CHRISTI, Texas — Rear Admiral Billy D. Holder, CNAVanTra, recently announced a new all-time aviation safety record for the Naval Air Advanced Training Command.

RAdm. Holder said, "I am extremely pleased to report . . . that, in aviation safety, all previous records have been surpassed. The accident rate for fiscal year 1971 was .59, an improvement of 18 percent over last year."

The fiscal year 1970 mark, also an all-time low — up to that time — was .72. The percentage is based on the number of aircraft accidents for each 10,000 hours flown by aircraft of the command.

The new record included four completely accident-free months, an accident-free year for squadron and station aircraft based at NAS Corpus Christi and the first accident-free year of carrier qualifications in the Gulf off Corpus since 1959. Nine of the 13 commands in the advanced training command complex operated accident free during the year.

For the jet squadrons at Kingsville

and Beeville, the accident rate dropped to a record low of .84. The prop squadron at Corpus Christi accomplished the ultimate in aviation safety. Those squadrons went accident free with nearly 73,000 hours of flying — in a student training environment.

Improvements Made on Quonset Runways

QUONSET POINT, R.I. — Among works scheduled to be completed by March 1972 at the naval air station are repairs to the shoreline bulkhead and resurfacing of an 8,000-foot runway.

New concrete facing for approximately 300 feet of existing bulkhead and the construction of approximately 600 feet of new steel sheet piling bulkhead are measures being taken to prevent erosion.

In resurfacing, the runway's width will be reduced from 300 to 200 feet. Construction personnel will work on half the runway width at a time.

A limited operational schedule for aircraft whose size requires 8,000 feet for takeoffs and landings will be maintained on the remaining half. During operating periods, construction personnel and their equipment will be removed from the runway.

Normal flight operations for Quonset-based units will proceed on a regular basis, utilizing one of two shorter runways.

New center-line lights will be installed and the present borderline runway lights will be moved 50 feet to-



CNAVanTra points to new low accident rate.

ward the center to accommodate the new 200-foot width of the runway.

Another contract provides for the construction of foundations for new runway arresting gear. Hydraulically operated arresting gears will be located on two runways, the main landing strip and one parallel to the sea wall, replacing a current system which operates on a system of weights. The new gears will be bi-directional so that a pilot can hook his aircraft into them regardless of his directional approach to the runway.

VX-5 Awarded MUC

CHINA LAKE, Calif. — Air Test and Evaluation Squadron Five marked its 20th anniversary in June in memorable fashion — receiving the Meritorious Unit Commendation.

The award for outstanding service by a naval unit was presented by Captain V. M. Dawkins, Commander, Fleet Air Alameda, who praised VX-5 for its 20-year record of excellence and its performance during FY 70, the period cited in the award.

During that year, VX-5 published more than 50 major and minor reports on squadron-developed tactics for air-to-ground weapons and attack aircraft.

In addition, the squadron guided the fleet introduction of the A-7E and A-6C and developed tactics for the most effective use of their sophisticated weapons delivery systems.

"It's unusual for a shore-based outfit to receive something like this," said Captain Tex Birdwell, squadron C.O.

Commanding officer during the period of the award was Captain Charles W. Fritz.

Bringle Relieves Wendt

LONDON, England — Admiral William F. Bringle relieved Admiral Waldemar F. A. Wendt as Commander in Chief, U.S. Naval Forces, Europe/Commander, Eastern Atlantic in June.

The change-of-command ceremony was held in the auditorium of the U.S. Embassy in Grosvenor Square.

Admiral Bringle's last assignment was as Commander, Naval Air Force, U.S. Pacific Fleet.

Admiral Wendt retired after 42 years of naval service.

Tests Conducted for Midair Recovery

EL CENTRO, Calif. — As part of the basic research to develop an advanced search and rescue procedure for mid-air recovery of a parachuting pilot over enemy territory, the Naval Aerospace Recovery Facility is conducting live-subject tests of a man-tow project.

Under the direction of Mr. Jon Matsuo, project engineer, and LCdr. Don Reid, MSC, aerospace physiologist, the project is attempting to establish the limits of tolerance for a live subject being towed behind an aircraft in flight.

Three Navy volunteers — CWO James L. Hill, PRCS Harold W. Picard and PR3 R. C. Willis — are the subjects of the tests. Hill and Picard are master naval parachutists and Willis is

a senior naval parachutist.

They are being towed behind a C-130 at speeds from 110 to 150 knots, with future tests expected to involve speeds up to 200 knots. The subjects are instrumented for 15 channels of physiological and environmental data, such as electrocardiograph, core temperature, skin surface temperature, and applied tow and shock forces.

The instrumentation will provide important physiological base line data in determining the limits of speed, time and altitude at which a man can be safely towed behind an aircraft.

The results will determine the advisability of further research on the mid-air recovery project.



Atsugi Changes Hands

NAS ATSUGI, Japan — On July 1, NAS Atsugi became a naval air facility. The government of Japan, through its representing agency, the Japanese Maritime Self Defense Force, has assumed responsibility for the operation and maintenance of the airfield.

The Japanese Imperial Navy first developed Atsugi in 1938 as an experimental aircraft field. At the outbreak of WW II, the grass runway was turned into a fighter airstrip. Toward the end of the war, the Japanese military command at Atsugi went underground; nearly 17,000 soldiers dug a 12-mile-long underground complex which contained barracks, galleys and hospitals.

After the war, Atsugi was used by the U.S. Army for a brief time, until the outbreak of hostilities in Korea. In December 1950, Atsugi was commissioned a naval air station. Since its commissioning, it has provided tactical as well as material support to the fleet and other military units.

Record Firebee Launch Commemorated

NORTH ISLAND, Calif. — A plaque presented to VC-3's commanding officer, Commander R. E. Labarre, by Vice Admiral W. R. Bringle, then ComNavAirPac, marked the squad-

ron's 2,000th successful launch of the BQM-34A target drone.

VC-3 began using the *Firebee* to provide realistic high speed, high altitude targets. The squadron now uses its two newly acquired DC-130A's as platforms for airborne launch of the BQM-34. The DC-130A is equipped with full telemetry gear to launch and control the drones entirely from the aircraft. It can carry a total of four drones on a single mission.

VC-3 was the Navy's first squadron to use modified DC-130 *Hercules* aircraft for air launch operations. A replacement for DP-2E *Neptunes*, now being phased out of operational status, the *Hercules* carries twice the number of targets as the *Neptune*.

Rare Job for Sergeants

IWAKUNI, Japan — According to an MCAS release, MSgt. Sam A. Gill and GySgt. Richard H. Heubner, attached to the electronics warfare and reconnaissance surveillance operations section of VMCI-1, are two of only six enlisted men in the Marine Corps who can serve as crew members in EA-6A *Intruders*.

Designated Naval Flight Observer and Naval Aviation Observer, respectively, both are qualified to ride the back seat of the RF-4B *Phantom* as reconnaissance systems officer and in the right seat in the EA-6B *Intruder* as electronic countermeasures officer. In

the *Phantom*, they operate the navigational, camera and radar systems; in the *Intruder*, the airborne electronic countermeasures equipment.

Sgts. Gill and Heubner began their flying careers 15 years ago; Gill at MCAS Cherry Point in the F3D *Skyknight*; Heubner in the AD-5 *Skyraider* at El Toro.

GySgt. Heubner is the only enlisted man to have flown as the RSO aboard a *Phantom* on a trans-Pacific flight — from El Toro to Da Nang. He is also the only enlisted man to eject from a *Phantom*.

MSgt. Gill flew 330 combat missions during his first Vietnam tour. He also flew as ECMO aboard the last Marine Corps jet to fly a combat mission in Vietnam.

Change at CNATra

PENSACOLA, Fla. — In a ceremony aboard the naval air station in mid-July, Vice Admiral Malcolm W. Cagle relieved Vice Admiral Bernard M. Streat as Chief of Naval Air Training.

Adm. Cagle's previous assignment was as Assistant Deputy Chief of Naval Operations (Air); Adm. Streat retired after 42 years of naval service.

Guest speakers at the ceremony were Vice Admiral Thomas F. Connolly, Deputy Chief of Naval Operations (Air Warfare), and Dr. Norman Vincent Peale, Minister of the Marble Collegiate Church, N.Y.



GRAMPAW PETTIBONE

Blaze of Glory Agony

The venerable C-45, *Sneeb, Bug Smasher, Beechcraft* (would you believe *Navigator*) has almost faded from the Naval Aviation scene. Not without its trials and tribulations, however, as many a CRT proficiency pilot can attest. It has also probably hauled more people and more parts more miles than most other Navy aircraft combined. Old soldiers never die, they just fade away; this one, however, went in a blaze of ?

Three proficiency types, a Marine lieutenant colonel, a major and a Navy lieutenant departed an East Coast air station at 0630 one blustery Sunday morning en route home from a weekend cross-country. After takeoff, the lieutenant colonel plane commander gave up his left seat to the copilot, and the lieutenant moved into the right seat. This enabled the lieutenant colonel to get some extra shuteye on the way home — he had been out rather late and had gotten only three hours' sleep.

As they approached home station, the pilot awoke and exchanged places



with the lieutenant in the right seat. A GCA was performed and, as they broke out VFR, he took the controls and made an uneventful landing.

Shortly after turning off the duty runway, the pilot radioed the tower that his landing gear was folding and requested permission for an immediate downwind takeoff on the taxiway. The tower operator was too shocked for an immediate reply, and the lieutenant colonel called again for an emergency downwind takeoff and stated that his

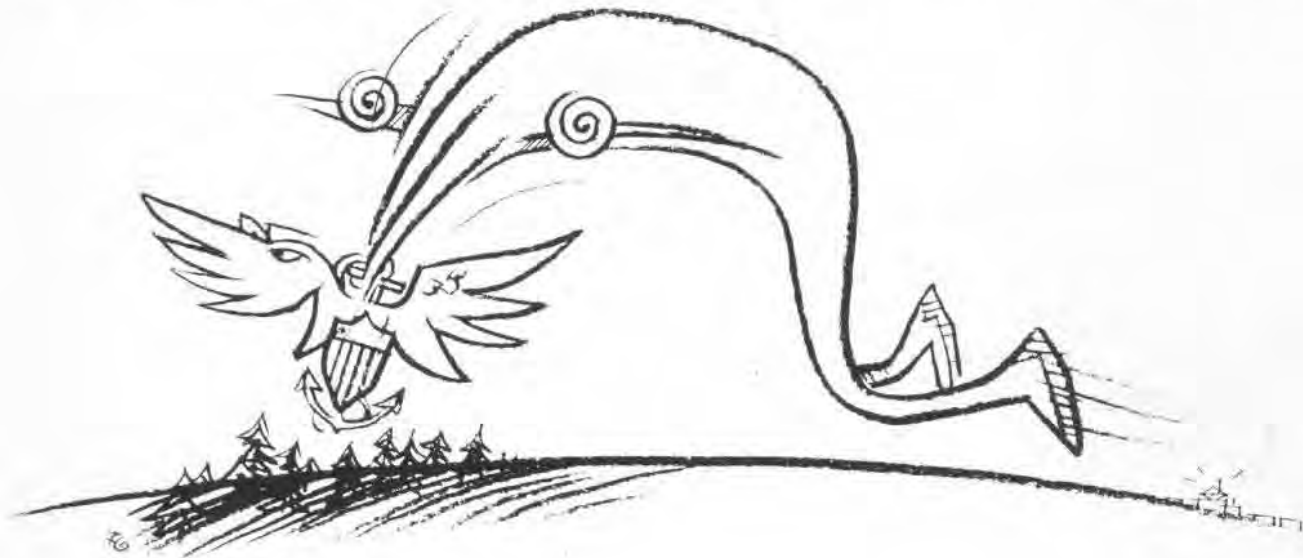
fuel was minimum. He wanted an immediate right turn. By the time the tower could give emergency approval, the *Beech* was airborne.

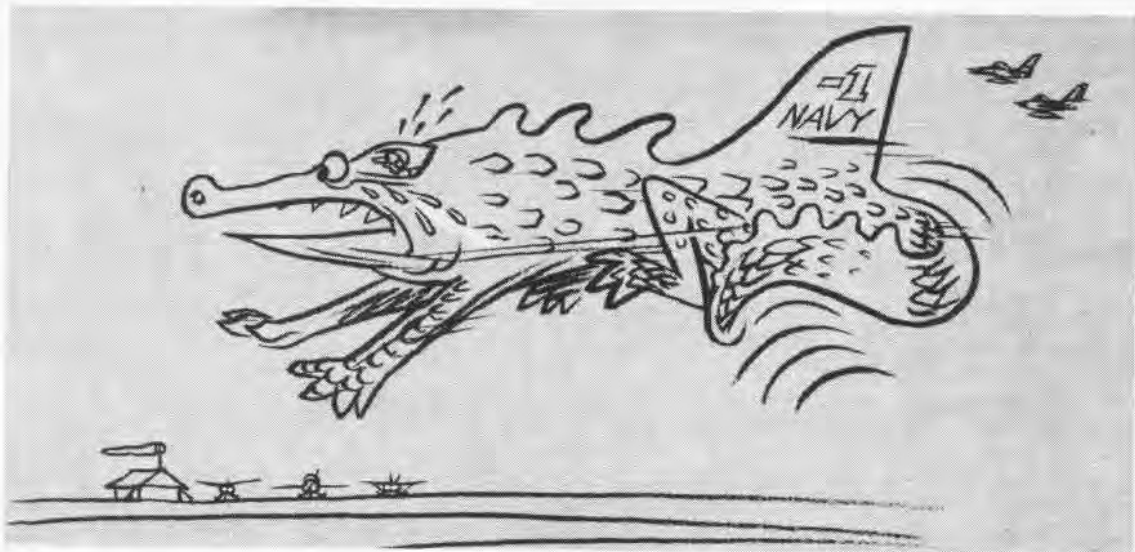
Several seconds later the aircraft began a right turn, followed immediately by a left turn. The *Beech* then began to lose altitude and went into the trees shortly thereafter, at about 40° off runway heading. The C-45 immediately began to burn. The lieutenant colonel escaped through a broken open section of the cockpit and the lieutenant through the cabin door. The major did not get out of the aircraft. Neither of the pilots had his shoulder harness fastened.



Grampaw Pettibone says:

Great gallopin' gremlins! How in thunderation would you ever explain that one? It just don't make sense, no matter which way I turn it. It turned out that the bird took off with the fuel selector on an empty auxiliary tank. And attempting a takeoff to prevent landing gear collapse is about the most stupid thing I ever heard of, and I've heard 'em all. What was goin' on in that pilot's mind? Perhaps he was still befuddled from the night before.





Again?

The Marine captain and his first lieutenant wingman, on an instrument proficiency flight across the southern part of the country, briefed and took off shortly before noon. Checking with metro (weather services) en route, they decided to turn back from their mid-continent refueling stop and land at a desert base to re-group. While there, they ran into a major who was also en route east in an A-4 *Skyhawk*. All three briefed together and took off again at 1535. After consulting metro again, the major decided to re-file to a closer southern air force base.

It was dark by the time they arrived at the north initial point for a landing to the south. The first lieutenant who had been flying wing had not had an opportunity to review the approach plates but was appointed to land first. He had 1,300 pounds of fuel in his fuselage tank but he also had 1,300 pounds trapped in his left drop tank. The duty runway was 17 and the winds were called at 270°, 20 knots, gusting to 27 knots. His first pass resulted in a waveoff because of excessive yaw into the wind. With fuel down to 950 pounds, he declared an emergency. The tower asked him if he had the field in sight which, of course, he did.

On the second pass, he touched his *Skyhawk* down at about the 1,000-foot point and concentrated on keeping on the runway. Not seeing any distance markers, he dropped his hook. There didn't seem to be any arresting gear and the end came up pretty fast. The

A-4 rolled several hundred feet off the end of the runway into a ditch at 20 to 30 knots. The slightly shaken pilot secured the plane and climbed out to find that he wasn't at the air force base after all, but at the local county airport.



Grampaw Pettibone says:

Crumblin' crocodiles!!! Don't that wilt the lily on the vine. That young'un sure worked hard, tho, 'n kept his cool. I really gotta hand it to him for keepin' that *Skyhawk* on the runway (laterally, that is) with those wind conditions. Way outside of NATOPS limits, too.

That's like winnin' the battle but losin' the war; or puttin' the bombs right in the middle of the ammo dump, then findin' out it was your own dump.

Gotta hand it to those two fearless leaders, too, for settin' him up fer it so well. It's a wonder they didn't land right behind him. Who's going to be next? It'll happen *again* in about six months.

Testimonial

Nothing says it like someone who has been through the mill. If there was ever a testimonial to NATOPS this is it.

The pilot was forced to bail out of his A-1H *Skyraider* while returning to the ship after his aircraft took a hit in the engine accessory section while over enemy territory. He was on the sick list for two weeks for a neck whiplash, a sprained ankle, and a few cuts and bruises. The mishap occurred several years ago, but the story was just recently told.

The A-1 is no longer with us; however, the pilot's golden words are as

valid today as when they were written and apply to any aircraft. Let's take up with the story as he tells it. "I can only say thank God I was wearing my sun visor down, had my gloves on and was wearing sturdy combat boots, because, after 24 years of Navy flying, I needed all of them at the same split second.

"The memory that lives most vividly in my mind (relating to my bailout from a burning aircraft) is that as I was going through the actions of opening the cockpit canopy and locking it open, positioning myself in the cockpit preparatory to getting out — including even the proper positioning of my hands — I was keenly aware that what I was doing was precisely in accordance with NATOPS. I was actually feeling complimentary toward myself because I had recited the bailout procedure aloud in *every* preflight briefing since I was first exposed to NATOPS. Running through my mind was the thought, 'Gee, this is great, I'm doing exactly what NATOPS says I should be doing — and it's working.' I don't mean to be patting myself on the back, *but* I have always worn my goggles or visor down, have always worn gloves and have never rolled up my sleeves. Otherwise, with the fire that I had on my hands at the time of bailout, I think I would have been seriously burned. It might have been disastrous if I had had to take the time out to do any of those things because seconds after I left the bird, she exploded. I wish I could imbue every fledgling aviator with the knowledge that safe practices *really* are life insurance."



Zeppelin

By LCdr. Paul Mullane

The motion picture industry in recent years has produced an increasing number of films dealing with World War I aviation. Inevitably, the movie moguls, in an attempt to break away from an exciting but overworked aerial combat theme in which Sopwith Camels are pitted against Fokker D VII's, were bound to come upon the impressive giant of early air warfare — the rigid airship. The motion picture "Zeppelin," which appropriately made its U.S. debut at NAS Lakehurst's 50th anniversary celebration this June, once again introduced the rigid airship to the movie fan — possibly not effectively portrayed since "Hell's Angels" was produced in the late 1920's. However, in both films, the true purpose of the rigid airship was overlooked in order to generate the seemingly more exciting collateral uses to which it was sometimes assigned. In the latest fictional portrayal, the zeppelin is used in a raid on Scotland to make off with Britain's crown jewels, a highly unlikely employment. "Hell's Angels" at least dealt with reality when German airships were shown conducting bombing raids on London. However, the principal mission of the rigid airship as employed by the Imperial German Navy, and as subsequently operated by the U.S. Navy, was to provide scouting and aerial reconnaissance for naval forces.

The first lighter-than-air flight, in fact, the world's first flight of any kind took place in 1783 when Montgolfier ascended in his hot air balloon. That same year Professor Charles, also of France, built the first hydrogen-filled balloon. Though numerous lighter-than-air vehicles were conjured up on drawing boards in the following years, only non-rigid dirigibles and free balloons saw actual use.

Count Ferdinand von Zeppelin, born in the Kingdom of Wurttemberg near the Swiss border, in 1838, was to change that in 1900. Count Zeppelin, as a volunteer officer with the Union Army during the American Civil War, saw balloons used for military observation. Later, as a general in the Wurttemberg army, he observed their use in the Franco-Prussian War. Two years later, in 1873, he drew his first design of an airship. By July 1900, Zeppelin saw his ideas come to fruition when his first airship took to the air over Lake Constance in the first successful flight of a rigid airship. Four years earlier, a Berlin group built and flew a 150-foot, metal-skinned rigid airship, but it broke up on landing because of its fragile construction.

Zeppelin's 420-foot-long airship,

powered by two 16-hp engines, defied the consensus of scientific opinion that it would collapse. It made numerous successful flights. In spite of various accidents involving his airships and financial problems, Zeppelin's company continued to produce improved models. In 1909, the German Army decided to acquire its first rigid airship and, in 1912, the German Navy followed suit by purchasing the L-1. The performance of the L-1 convinced German naval officials that zeppelins were essential to naval warfare and the L-2 was ordered. These airships were powered by four 180-hp engines and were far superior in performance to Zeppelin's first attempts.

With the outbreak of the first world war, German commercial airships, which had provided more or less regular passenger service within Germany, were transferred to the army and navy. One of these, *Sachsen*, was used to bomb Antwerp in September 1914, only one month after the beginning of hostilities. But while the employment of huge airships to bomb distant targets captured the imagination and stirred the fears of the public, that mission occupied only about ten percent of the total employment of the German

naval airships. The remaining 90 percent of the flights were in support of naval operations, mainly reconnaissance over the North Sea. In contrast, the British, who did not produce rigid airships until late in the war, concentrated their use in search of U-boats and mine fields and occasional convoy escort duties. Britain's version of the rigid airship was quite similar to Count Zeppelin's design since their models were essentially copies of captured German craft.

Germany began the war with only four airships in its inventory, and both the army and navy immediately ordered more. By 1915, the navy, which began the war with only one zeppelin, was operating ten. Though production reached a level at which an airship was completed every six weeks, the German navy never had more than 19 in commission at any one time. These made a total of 1,345 flights of which only 200 were bombing raids, even though it was naval airships which carried out most of the raids on Britain.

Zeppelin airship construction and performance improved steadily during the war. Although low altitude reconnaissance provided the principal use of these giant craft, their vulnerability



Airships were actively employed by the Imperial German Navy throughout World War I. Although 63 such craft were procured from the Zeppelin Company by war's end, no more than 19 were on active service at any one time. Well known for their bombing raids on England, the airships' naval reconnaissance role is generally overlooked.



Flying from England to the U.S. in July 1919 with *Shenandoah's* future C.O. aboard, R-34 was the first airship to cross the Atlantic.



Most famous of the commercial airships, *Graf Zeppelin* made over 200 long-range passenger flights without serious mishap. NAS Lakehurst provided terminal facilities in U.S.



Ill-fated R-38, scheduled to enter the U.S. naval service as ZR-2, broke in half on its final test flight and plunged burning into the Humber River at Hull, England.

to attack from Allied aircraft — firing British-developed incendiary bullets into their hydrogen-filled bulks — caused the Zeppelin Company to continually increase their altitude capabilities. By war's end, the latest German airships could reach 20,000 feet with a three-ton bomb load. A total of 88 German airships were built during the war with a little over 60 percent going to the navy. Wartime performance of the zeppelin accelerated interest in and development work on rigid airships in England, France, Italy and the U.S. Though they all had experience in producing non-rigid lighter-than-air craft, only the engineers and technical staff assembled by Count Zeppelin were capable of producing an advanced airship immediately following WW I. Still, the British achieved the first round-trip crossing of the Atlantic in July 1919 with their R-34, although it was essentially a copy of a 1916-model zeppelin design. While commercial airships were allowed to resume operations in Germany after the war, their size was restricted and their use as military craft forbidden.

A German-flag airship was not to cross the Atlantic until the passenger flight of *Graf Zeppelin* in October 1928 when size restrictions had been lifted. Before a year had passed, it had also flown around the world from Friedrichshafen, via Lakehurst and Tokyo, logging 21,200 miles at an average speed of 76 miles per hour in a little over 300 hours. Germany still led the world in airship development ten years after the war ended.

Meanwhile, France and Italy had lost interest in airships following the loss of *Dixmude* and *Roma*. The following year, the British ended their rigid airship program when R-101 crashed en route to India. U.S. interest, however, continued, based principally on the availability of nonflammable helium and the need for long-range ocean reconnaissance because the country's geographical position was separated from potentially hostile powers by vast expanses of ocean.

The rigid airship recommended itself for use in naval warfare in the post-WW I era due to its range (approximately ten times that of aircraft in the 1920's), its far greater load-carrying capacity in relation to contemporary aircraft and a speed three times greater than the fastest surface vessel.

The U.S. fleet, faced with guarding vast ocean areas washing each coast,

was short of modern cruisers in the 1920's. Fast scouting forces were particularly needed in the Pacific. Commander Jerome C. Hunsaker, on his return from duty with the Allied Armistice Commission, reported the airship's value in supplementing the work of scout cruisers. Cdr. Hunsaker, who supervised the design of every naval aircraft from 1916 to 1926, was also responsible for the design and construction of the U.S. Navy's first airship, the ZR-1, *Shenandoah*.

Backing Hunsaker's view were such influential officers as Admiral George Dewey who, as head of the Navy's General Board, advised the Secretary of the Navy that he saw the performance of the German zeppelins as "so remarkable that it is most necessary for the Navy of the United States to develop dirigibles of this type as soon as possible." Admiral H. T. Mayo, then CinCLantFlt, in a letter to the General Board also pointed out the airships' advantages "for reconnaissance and scouting purposes [where] they would be self-sustaining for long periods," and equated them with large, fast scout cruisers. Captain Ernest J. King also endorsed the rigid airship for its ability to carry out long-range reconnaissance well beyond the capabilities of the aircraft of the period.

The Navy Department, responding to these and other recommendations, authorized in 1919 the acquisition of ZR-1 and ZR-2 as well as the establishment of a supporting station — NAS Lakehurst. Navy battle plans in the 1920's called for the U.S. Fleet in the Pacific to advance behind a screen of rigid airships, augmenting scout cruisers and allowing some of the latter to strengthen the battle line. Government economies in mid-decade, however, slowed the planned airship construction program and put most funds into ships and heavier-than-air aircraft, which were showing greater progress per unit cost than the rigid airship. Still, Navy plans in 1925 called for completion of nine to eleven scout airships by 1930. The airship's advantage over the cruiser, in addition to its speed, was the amount of area which came within its visibility due to altitude. Under ideal visibility conditions, the cruiser could sweep an area 15 to 20 miles wide, depending upon the height of the observer. An airship cruising at 3,000 feet under the same conditions could theoretically attain over 60 miles horizontal visibility on

Zeppelin



Shenandoah's crumpled remains attracted curious sightseers who soon removed much of the exterior fabric as well as log books, instruments and other souvenir items. Of the 43-man crew, 29 survived.

either side of its path, a 120-mile width, while traveling at three times the speed. In actual practice, German airships in WW I had found 60 miles their maximum practical sweep width.

ZR-1 was built inside her hangar at NAS Lakehurst and completed in 1923. Though her design was based on the WW I German zeppelins forced down in England, she was the first American-built rigid airship, the first airship to use helium as a lifting agent, the first to use a water recovery apparatus for the continuous production of ballast from engine exhaust gases, and the first rigid airship to fly across the U.S. *Shenandoah* made her first flight from Lakehurst on September 4, 1923, and during her brief career logged 28,000 miles and some 750 hours in the air.

In August 1924, the first use of a shipboard mooring mast designed for airship operations with the fleet occurred when *Shenandoah* was secured to the mast on the fantail of the fleet oiler *Patoka* while she was underway in Narragansett Bay. Less than a week later, ZR-1 participated in her first exercise with fleet units, taking part in a scouting problem with the Scouting Fleet, involving 40 hours of continuous operations 300 miles at sea. In October, *Shenandoah* left Lakehurst on a 19-day, 9,317-mile trip taking her across the nation to NAS North Island and thence north to a point near the Canadian border and back to San

Diego before returning to the East Coast via Fort Worth, Texas. After her transcontinental flight, *Shenandoah's* activities were curtailed until the following summer, probably because of the delivery of USS *Los Angeles*, ZR-3, and a shortage of helium which restricted the concurrent use of both airships.

Shenandoah's next operations came in July 1925 when she participated in a fleet exercise in the Atlantic, performing scouting missions and towing targets for the battleship *Texas*. In September, ZR-1 left her mooring mast at Lakehurst on her last flight. En route to Columbus, Ohio, the *Shenandoah* encountered a severe thunderstorm near Ava, Ohio, and broke in two. The forward portion, flown as a free balloon by the officers and men trapped in that section, remained aloft for nearly an hour before being successfully landed without loss of life. The after section fell to earth, breaking into two parts. The control car and two engine gondolas were wrenched loose and plummeted to earth killing their occupants.

LCdr. Zachary Lansdowne, the commanding officer, and 13 officers and men died in the disaster. Twenty-nine of the crew survived.

The Navy was left with one airship, *Los Angeles*. Another airship, the British-designed ZR-2, planned for use in long-range offshore patrol, had crashed in England, where, as R-38, it



*ZR-1 pioneered at-sea airship operations from *Patoka*, a tanker converted to an airship tender. Her design was essentially that of the early German naval airships downed in England during WW I.*

was being flight tested prior to acceptance. Unfortunately, the R-38 crash took the lives of a number of the relatively small band of experienced LTA personnel, including LCdr. Lewis Maxfield who headed Navy LTA activities in Europe during WW I (*NA News*, March 1970, p. 32).

Los Angeles was built in Germany by the Zeppelin Airship Works as LZ-126, a continuation of the numbering system and a direct descendant of the WW I naval zeppelins. Not considered a reparation payment, LZ-126 was built as a replacement, paid for by the German government, for the two naval airships which had been allotted to the U.S. as "spoils of war" and which were destroyed by their crews in 1918. The Allied Council which authorized its construction required that it be no larger than the last of the wartime airships and could not be used for military purposes. At the time, our principal WW I Allies were involved in their own quests for technical superiority in airship construction. Though the restriction limited the naval applications of *Los Angeles*, she still served as a needed training vehicle and provided the Navy with an airship with which to pursue its auxiliary assignment of aiding in development of an American commercial airship capability. But, by the late 20's, the restriction on her military use was lifted.

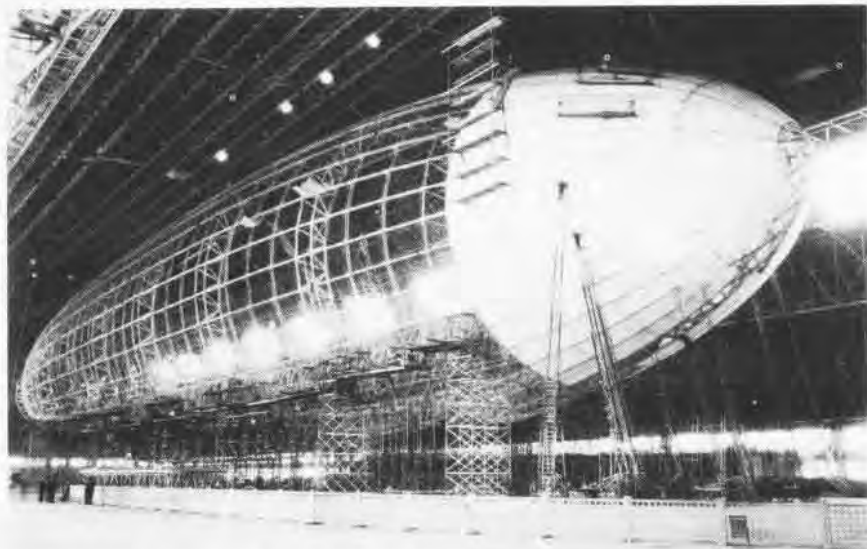
Leaving Friedrichshafen on October



USS Los Angeles, first and only rigid airship to make a carrier landing, touched down on Saratoga in January 1928 off Newport, R.I.



Caught in a sudden but gentle wind, USS Los Angeles stood on her nose in 1926, rotating 180 degrees around her mooring mast.



USS Akron begins to take shape at the Goodyear-Zeppelin airship dock as workmen start to apply the dirigible's thin fabric envelope over the spidery frame of duraluminum box beams.

12, 1924, ZR-3/LZ-126 reached Lakehurst on the 15th, the second airship to cross the Atlantic and the third non-stop east-west crossing by any aircraft. The 5,000-mile flight of the German-manned craft was made in 81 hours. On November 10, 1924, ZR-3 was accepted by the Navy and two weeks later flown to NAS Anacostia where she was christened *Los Angeles* by Mrs. Calvin Coolidge and entered upon an active and varied career. She proved extremely valuable as a training ship and vehicle for a variety of scientific and technical experiments, including aiding in developing improvements in airship design which would later be used in construction of *Akron* and *Macon*. *Los Angeles* in her active career from 1925 to 1932, when she was laid up for economy reasons, made long distance flights to such places as Bermuda and the Canal Zone, became the first and only rigid airship to land on an aircraft carrier (*Saratoga*) and was the first airship to conduct aircraft hook-on and launching tests for the U.S. Navy.

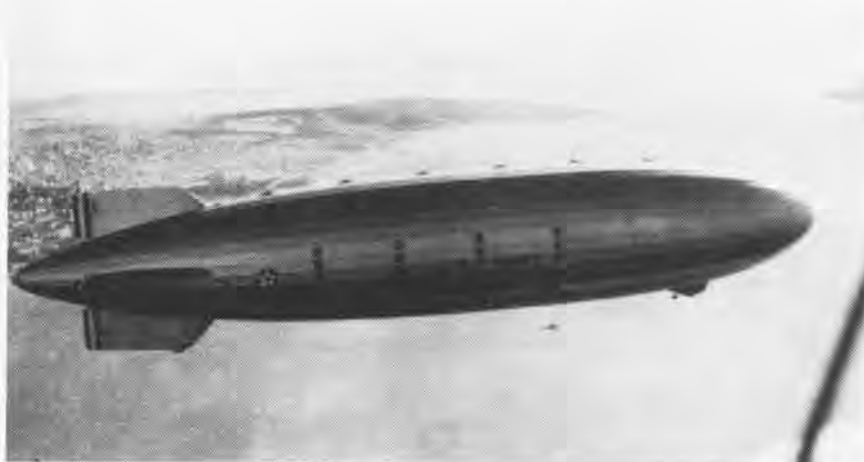
With the end of the restriction on her use in military operations, *Los Angeles* participated in Fleet Problem XII in 1931 off the west coast of Panama, scouting for the defending forces from *Patoka's* mooring facilities. In 1932 with *Akron* in commission and an economic depression gripping the nation, *Los Angeles* was decommissioned after 331 flights and 4,181 hours in the air. She was lodged in the Lakehurst hangar and remained there except for occasional outdoor testing until scrapped in 1940. Even in those cir-

cumstances, ZR-3 set a record simply by her 16-year existence — the longest of any airship in the world.

The U.S. Navy once again was down to one rigid airship but that was one more than any other armed force in the world. Germany, though operating *Graf Zeppelin* in commercial service, was barred from military airships, and all other nations had lost interest in the huge aerial craft. In *Akron* and, later, in *Macon*, the Navy carried the rigid airship to its highest state of military development. Its internally carried aircraft could extend its practical sweep width to 180 miles when deployed to a point 60 miles on either side of the airship. This capability would allow five like airships to replace 40



Flying an N2Y, Navy pilots work out hook-on techniques and refine equipment, using *Los Angeles's* experimental trapeze device.



Six 560-hp Mayback engines drive Akron over San Francisco Bay in the early 1930's as the rigid airship prepares to recover one of her F9C-2 Sparrowhawk fighters on her trapeze.

fast cruisers scouting a 1,200-mile-wide front. Aside from their increased size and the technical and structural improvements, ZRS-4 and ZRS-5, *Akron* and *Macon*, respectively, differed in one major aspect from all other previous or subsequent airships in the world. Between frames 125 and 147.5 on the underside of their gigantic hulls was a small T-shaped door through which aircraft could be hoisted or lowered on a trapeze recovery/launch device to and from an internal hangar.

This made them unique among airships. Though the launching of military aircraft from airships had been tested as early as 1918 when the German L-35 carried an *Albatros D III* aloft and successfully released and flew it to the surface and the British and U.S. Army had carried out similar experiments, no airship had ever been built capable of carrying and recovering its own aircraft. ZRS-4 and ZRS-5 represented a new concept — an airborne aircraft carrier. Not an aircraft carrier in the sense of *Langley*, *Lexington* and *Saratoga*, which were contemporaries, but more in the sense that cruisers and battleships carried their own observation aircraft. These planes at first had to maintain visual contact with their mother ship. Later, with radios installed, they were able to scout more effectively. Even so, *Akron's* and *Macon's* planes were expected, at least as first conceived, to provide protection for their mother ship from attacking fighters and dive bombers.

Physically the ships were huge: 785 feet in length, 133 feet in diameter, displacing over 7.4 million cubic feet of

space and weighing nearly a quarter million pounds. ZRS-4 and -5 were powered by eight 560-hp, 12-cylinder Mayback engines mounted in internal engine rooms and controlled from the airships' bridge by engine telegraphs to the machinist's mates on watch. Power was supplied to the propellers which were mounted on directional shafts, allowing them to pivot from forward to downward to assist in maneuvering the airship. Reversible engines gave additional maneuvering capabilities.

Fuel was carried in 110 tanks located along the airship's length with a maximum capacity of 126,000 pounds. Ballast totaling 223,000 pounds was contained in 32 storage bags and twelve 1,000-pound quick release emergency bags. Lift was provided by 12 helium-filled gas bags with a total lift of 403,000 pounds. The airship's exterior cover was made up of 33,000 square yards of cotton cloth treated with two coats of clear dope and two more of aluminum pigmented dope. This covering, weighing 11,300 pounds, provided a smooth aerodynamic shape. Manning ZRS-4 and -5 were flight crews of ten officers and 50 enlisted men. Four of the officers were pilots. The airships could reach a maximum speed of about 70 knots or a maximum range of over 7,200 miles at a 46-knot cruising speed.

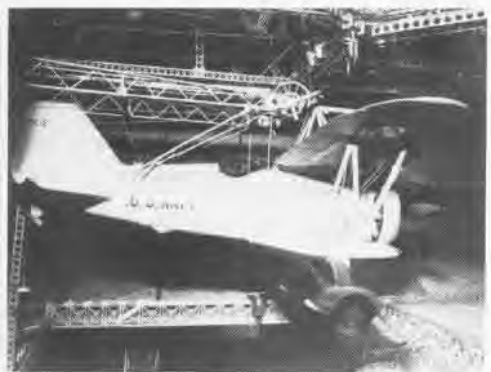
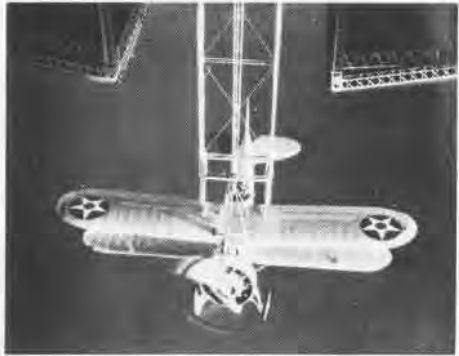
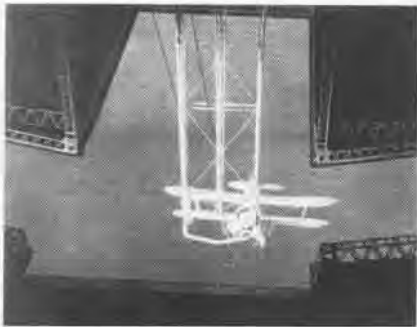
The first of these two huge rigid airships to be constructed was USS *Akron* which was first flown on September 25, 1931, and commissioned the next month. *Akron* made her first flight as a commissioned airship No-



An N2Y dives away from USS *Akron's* trapeze during launch and recovery training flights for pilots and airship personnel.

vember 2 while conducting a special flight, for aviation writers and editors, from Lakehurst to Washington, D.C., and return. A total of 109 persons was aboard including Rear Admiral William A. Moffett, Chief of the Bureau of Aeronautics. A number of local and long distance flights followed and, in January 1932, *Akron* carried out operations with the Scouting Fleet in the Atlantic and later rendezvoused at Hampton Roads with *Patoka* to make her first mooring to the tanker's mast. After repairs to her lower fin, damaged when her stern broke loose from its mooring in a strong wind, ZRS-4 underwent repairs in February and March causing her to miss the 1932 fleet problem in the Pacific. However, in April, *Akron* resumed local flights and, in May, with her trapeze gear finally installed, achieved her first recovery of aircraft when Lt. D. Ward Harrigan and Lt. H. L. Young flew N2Y's and an XF9C-1 to hook-ons.

Five days later, the airship departed



From the top, a Sparrowhawk approaches USS Macon's trapeze, hooks on, and then is stowed in the rigid airship's hangar.

for Camp Kearny near San Diego, carrying one N2Y and the XF9C-1 Sparrowhawk. Though rough weather was encountered en route, *Akron* arrived safely and a few days later proceeded to NAS Sunnyvale, Calif., later named Moffett Field.

On May 17, *Akron* again moored to *Patoka* in San Francisco Bay and later exercised her planes in hook-on practice before continuing on to Bellingham, Wash. She returned to San Diego in time to participate in an exercise with the Scouting Fleet in early June. Though she was twice successful in locating the "enemy" forces, O2U's launched by their cruisers carried out attacks against *Akron* which raised questions concerning her vulnerability, even though her F9C was not present to offer protection. Her performance in this exercise and those conducted earlier in the Atlantic resulted in varied opinions among the senior officers participating as to her usefulness, and the Commander Scouting Force did not feel he could recommend to CNO any further expenditures for rigid airships in the immediate future. Also in question was the ability of the airship to operate away from her hangar facilities.

On her return flight to Lakehurst, *Akron* encountered more rough weather. The reconnaissance mission assigned these craft limited their usefulness to altitudes of 2,000 to 5,000 feet above the ocean surface. They were not designed for high altitude travel as the WW I German airships had been. Thus, when forced to climb in order to pass over mountains near Phoenix, Ariz., and finding the airship had burned off less fuel than planned,

Akron was forced to circle and jettison fuel in an attempt to lighten ship enough to clear the obstructions.

As she neared her pressure height and her gas cells reached 100 percent full, her automatic valves came into operation and blew off lift-giving helium.

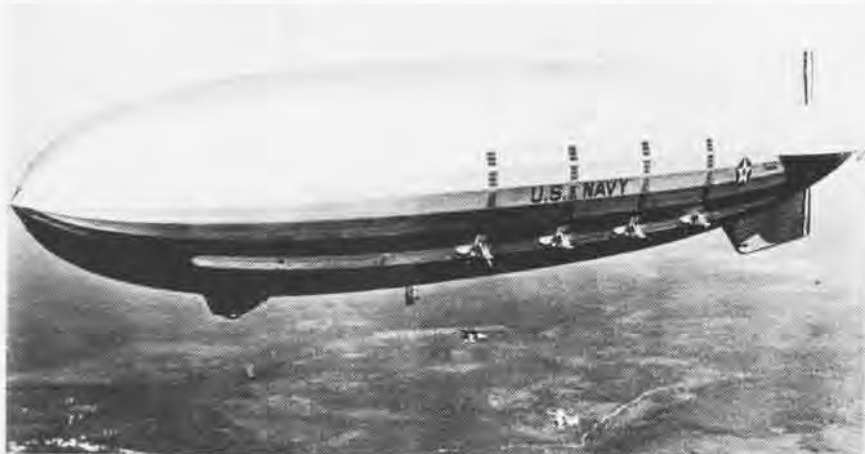
At last it was determined that the two aircraft stowed in *Akron's* hangar had to be flown away. As Richard K. Smith describes the situation in his book, *The Airships Akron & Macon*, "At 0415 George Campbell held reveille on the pilots and told them they were getting out. It was urgent — not even time for a cup of coffee! Harrigan went to the control car and asked Scotty Peck for a chart, but Peck had only one of the area and needed it to navigate the airship. Peck pointed at the Southern Pacific's railroad tracks below, and told Harrigan that they would take him and Young into El Paso."

They were to fly on to Pecos and then rejoin *Akron*. At Pecos the planes flew up to meet her, but the trapeze stayed inside the closed hangar doors and they received no reply to their radio calls. Returning to Pecos, they were met by a telegram instructing them to proceed to Lakehurst independently, which they did; but lacking a compass, Harrigan followed the railroads all the way back.

On return to Lakehurst, *Akron* received three-bladed props to replace the two-bladed ones which she had originally been fitted out with and increased her maximum speed by seven knots. Hook-on operations resumed and new pilots were checked out in this unique type of flying. In September, six F9C-2's were received and hook-on drills and gunnery flights with these aircraft became regular routine as the HTA pilots worked out tactics and procedures for the new planes.

These activities, gunnery exercises for the *Akron's* gun crews and the various services she was called upon to perform for other Navy units occupied ZRS-4 into March 1933. But late on the afternoon of April 3, *Akron* departed Lakehurst on what was to be her final flight.

On board, in addition to her crew, were Rear Admiral Moffett; Lakehurst's commanding officer, Commander F. T. Berry; and two other observers. The flight was to be a routine training mission, but the airship was soon caught by a fast moving



Macon's Sparrowhawks come home to roost while she flies over New Jersey. What appears to be a radome below the forward control cabin is a bumper to take the shock of ground contact.

squall line which had not been predicted, and maneuvers to work clear while visibility was limited by clouds and darkness proved futile.

Caught in violent downdrafts, *Akron's* tail struck the ocean surface and the huge airship was rapidly dragged down. Though the German motorship *Phoebus*, which had observed the disaster, was on the scene within 20 minutes, only four survivors were found, one of whom died shortly afterward.

The loss of *Akron* once again reduced the number of Navy rigidts to one. *Macon*, though not yet delivered, had been christened at the Goodyear-Zeppelin Company airship dock in Akron, Ohio, only three weeks earlier. While *Macon* would carry on the work of *Akron* in developing the tactical employment of the airship with the fleet, serious and irreparable harm had been done the rigid airship program due to doubts raised concerning the dirigible's vulnerability to damage in severe weather.

Macon made her first flight April 21, 1933, only 17 days after the loss of *Akron*, making a speed run in which 70 knots was reached. Two days later climb trials and fuel consumption tests were conducted on a second flight. This flight also marked the introduction aboard *Macon* of three-bladed, adjustable pitch, metal propellers as replacements for the older style two-bladed wooden props.

After two more test flights, Rear Admiral Ernest J. King, new head of the Bureau of Aeronautics, placed *Macon* in commission in June, and then boarded the airship for her delivery flight to Lakehurst. With only minor differences *Macon* had the same construction and design as *Akron*, plus some features introduced from lessons learned during ZRS-4's operation. ZRS-5 was able to commence her shakedown with her aircraft recovery trapeze already installed, an advantage *Akron* had not had.

Since none of *Akron's* aircraft had been aboard during her fatal flight, the planes and pilots of the HTA detachment were ready to immediately begin working with *Macon*.

From July through September, numerous hook-on drills were held and minor bugs worked out. Then, on October 12, 1933, after only a little more than four months in commission, *Macon* departed Lakehurst on her first transcontinental flight. Following ar-

rival at NAS Moffett Field, ZRS-5 made two local flights over San Francisco Bay before participating in fleet exercises in mid-November.

CNO had advised Commander in Chief, U.S. Fleet, that *Macon* was to be employed to the fullest extent possible during these exercises so that a report could be made on her military value. During the first day of the exercises in which *Macon* served as a scout for the Blue force, she twice broke out of clouds over enemy cruisers which immediately opened up with simulated antiaircraft fire resulting in ZRS-5 being ruled shot down. Two days later, in another exercise, two of *Macon's* planes reported locating the enemy force. After recovering the F9C's, *Macon* hid in clouds for awhile before attempting to regain contact.

Relocating the enemy force took several hours and, when the force was sighted, *Macon's* radio had hardly gotten off the contact message before enemy fighters swarmed around her, causing her to be ruled shot down once more. The umpire on board *Macon* reported that the airship had suffered navigation difficulties in addition to being extremely vulnerable when in close contact with the enemy. As a result of these exercises, it was recommended that *Macon's* aircraft be used to scout ahead of the airship when enemy forces were expected to be near at hand and that the airship should remain out of sight.

In a new group of exercises begun in January 1934, in clear weather with excellent visibility, *Macon's* lookouts spotted ships on the distant horizon and the two *Sparrowhawks* were hoisted out and sent to investigate. They reported a large force of cruisers, transports and destroyers. ZRS-5 relayed the message to Blue force which was able to launch an air strike that was credited with great success in destroying the enemy force.

Since all the aircraft carriers had been assigned to the Blue force, *Macon* had no worries from that quarter; however, the enemy shore-based aircraft soon became active and caused her to seek the shelter of her own cruiser's AA defenses.

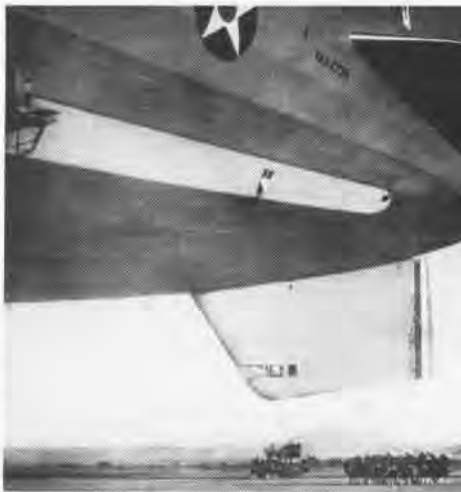
At dusk *Macon* again set forth to locate the remaining opposing surface force, but once again blundered directly over an enemy cruiser force which shot her down at point-blank range. The following day, a new exercise began and this time the *Sparrowhawks*



ZR-5 approaches NAS Moffett Field's mooring mast, as mooring crew handles a line dropped from the airship's bow hatch.



A look forward in *Macon's* control car toward rudderman's wheel shows navigator's table on right. Below, ground crew prepares to secure *Macon's* tail at Moffett Field.





NAS Moffett Field's helium storage plant and airship hangar stand behind USS Macon (ZRS-5) as she is prepared for a training flight from the station's movable short mooring mast.

were sent out immediately to make a sweep on either side of *Macon's* track; however, it was the airship's own topside lookouts who first spotted the opposition — in the form of 18 enemy fighters swooping down to attack. Fifteen minutes later, ZRS-5 was ruled shot down again.

The airship was released shortly afterward to return to Moffett Field. Her mooring there ended a 74.2-hour flight which had covered 3,439 miles and still left 33,430 gallons of fuel remaining in the tanks.

Macon got her next chance to prove her worth in February during two more exercises off Southern California. Departure was delayed by bad weather at Moffett Field. Fog and rainy conditions in the exercise area limited visibility for the late arriving airship. In the half light of evening, *Macon* unknowingly approached the enemy battleships *Texas* and *New York*. They waited until she came within range and then proceeded to open fire using searchlights to simulate their guns. Again, *Macon* was shot down.

As the weather further deteriorated the airship returned to Moffett Field, missing the next exercise.

Another fleet problem did not take place until April. Again *Macon* traveled down the California coast to join the Blue Fleet off Baja California. When the exercise had begun, ZRS-5 made a sweep along the Mexican coast and soon found herself in trouble. Jumped by a pair of dive bombers, the airship headed down through an overcast to lose them, only to come out over the guns of a division of enemy

cruisers and, an hour later, she was attacked by a squadron of dive bombers. Ruled destroyed, the *Macon* continued in action as the hypothetical ZRS-6 for another hour and a half before being shot down again by enemy aircraft.

Late in April, *Macon* crossed the continent once more, but not without difficulty. Encountering severe turbulence over West Texas, several girders in her after structure buckled and broke. Damage control teams quickly made emergency repairs and the airship was able to continue the flight to her Opa-locka, Fla., base where more permanent repairs were made in time for her to join the fleet exercises of Fleet Problem XIV in the Caribbean in early May.

Allied with the Blue forces again, and with two F9C's aboard, ZRS-5 set out to join the fray. Midway between Jamaica and the Panama Canal Zone, *Macon* received orders to search to the northeast for an enemy fleet. Shortly afterward, she emerged from a cloud bank to see before her three unidentified cruisers. *Macon* sent her F9C's to investigate as she turned away to put herself at a safe distance.

The cruisers proved to be those of the opposing force, and *Macon* continued to patrol, with her aircraft leading the sweep, under conditions of limited visibility. The *Sparrowhawks* returned for refueling and while being secured within the airship, *Macon's* radio intercepted a call from *Lexington's* aircraft reporting that they were directly above the airship and preparing to attack.



HTA detachment's acrobat insignia is visible on F9C hanging from *Macon's* trapeze.

At that moment, personnel on *Macon's* bridge spotted *Lexington* through a break in the clouds, some 20 miles distant, while topside lookouts were reporting the incoming enemy aircraft. Only one of the F9C's could be launched in time to meet a swarm of FF-1's that made multiple runs on the giant target.

Macon was ruled lost but her report of *Lexington's* position brought a devastating attack on that carrier by the aircraft of her sister ship, *Saratoga*, flagship of ComAirBlue. Resurrected as ZRS-6, the airship continued to search for enemy forces. Through the use of newly worked out tactics, her aircraft conducted scouting operations controlled by her radio, which proved very promising in solving the airship's problem of vulnerability when in the close presence of enemy forces.

Three days after completing the Caribbean exercise, *Macon* left Opa-locka for Moffett Field via Texas. Once again operating from her West Coast base, the airship was employed in a variety of duties ranging from routine hook-on training to gathering calibration information for coastal RDF stations. These activities occupied ZRS-5 from late May until early November 1934, broken only by two long-range reconnaissance flights worked out by the airship's officers to demonstrate *Macon's* capabilities. The first, in July, intercepted the cruisers *Houston* and *New Orleans* en route from Panama to Hawaii with President Franklin D. Roosevelt aboard.

The F9C's flew down and dropped bags filled with the latest newspapers



and magazines for the President, while at the same time drawing attention to *Macon's* scouting abilities. In October, a similar search mission utilizing her *Sparrowhawks* to further develop scouting tactics was carried out against the Matson liner *SS Lurline* between Hawaii and San Francisco.

In early November, *Macon* once more joined in fleet exercises off California's coastline. This time, however, the airship remained in the background and let her aircraft carry out the scouting mission. Her planes were successful in finding *Saratoga*, the enemy carrier, and keeping her under surveillance for several hours, while *Macon*, content to act as carrier for scouting aircraft, avoided the embarrassment of being downed again.

After more local flights and drills sharpening the aim of *Macon's* own gun crews, ZRS-5 rejoined those naval vessels remaining in California waters, designated Orange force, to meet the fleet returning from the Caribbean. Scouting the area south of San Diego, *Macon* was suddenly confronted with *Saratoga* who steamed out of the haze and began launching dive bombers against the highly visible airship.

The SU-1's maneuvered into a position to attack and were soon screaming down on *Macon's* huge form. But a sharp turn to starboard caught the dive bombers by surprise and they dove past, wide of their mark but well within range of the airship's machine guns. Just then the two *Sparrowhawks* returned to drive off *Sara's* planes. After a quick refueling, the F9C's were back in flight, shadowing the carrier until

Akron and Macon reached highest development of the military airship. Their loss, together with the dramatic end of *Hindenberg*, below, signaled the end of an era for the rigid airship. *Los Angeles* and *Graf Zeppelin I and II* continued in existence until destroyed in 1940.



Zeppelin

the end of the exercise.

In December, *Macon* took part in yet another fleet exercise, this time with four F9C's aboard.

Early on the first day, the airship's lookouts spotted an enemy battleship while one flight of her planes located the opposing scouting line. A little later, the second two-plane section reported that they were tracking *Lexington*, the enemy carrier, along with a group of cruisers. So far, *Macon's* tactics had been highly successful but, within an hour and a half, *Lex's* SU-1's had found her and again *Macon* was counted as shot down.

Recommitted to the battle as ZRS-6,

the airship lasted less than an hour under her new identity before succumbing to *Lexington* planes again.

The next day the airship and her brood successfully tracked various opposing surface units but, in the early afternoon, the exercise was halted when two of the cruiser *Cincinnati's* float planes ran out of fuel and had to set down at sea. The fleet immediately began a search for the downed planes, but it was one of *Macon's* F9C's that found the aircraft.

The airship soon arrived and floated overhead marking the position for the cruisers which came steaming over the horizon to make the pickup of the undamaged planes and their crews.

Between the end of that exercise and February 1935, *Macon* was in-

involved in several tests, together with surface vessels, to determine visibility of both the airship and sea-going ships in daylight and darkness. Then, on February 11, 1935, the U.S. Navy's last commissioned rigid airship departed Moffett Field on her final flight.

Macon was rolled out of her hangar in the dim light of early morning into drizzle and low overcast conditions. The airship was not scheduled to participate in the fleet exercise being conducted — but was to make use of the ship's movements to train in strategic scouting — the type of mission for which *Akron* and *Macon* had been originally conceived. Restricting her activities to serving as an aerial facility for operating and servicing her aircraft, *Macon* was highly successful in lo-

ZR-1 is alive and flying

On September 4, 1923, America's first home-built rigid airship, ZR-1, USS *Shenandoah*, made her first flight from NAS Lakehurst, N.J. She was Navy-engineered and Navy-built. On April 21, 1971, a flying, scale replica of ZR-1 left the Naval and Marine Corps Reserve Training Center in Columbus, Ohio, to begin an educational tour as the world's only flying rigid airship. Has history repeated itself? Not quite. But on an unofficial basis, the Navy, at least on the local level, has helped bring us back to a fascinating era!

In late fall 1970, LCDr. Ron Rockwell, skipper of the Columbus facility, received a phone call from the author who was in somewhat of a quandary. The frame of a rigid airship had been completed, but there was no place to assemble it. After an understandable pause on the other end of the line, I explained that my film-producing firm was making a documentary motion picture about the career of *Shenandoah* and planned to build a flying replica to be used in the flying sequences. Our problem was that we couldn't find a construction area large enough to contain the assembly jig and, at the same time, accommodate the van that was to transport all 30 feet of it. LCDr. Rockwell agreed to help. Since then, part of the spacious electrical shop at NRTC Columbus has been the home of *Shenandoah II*.

The original *Shenandoah* was officially commissioned October 10, 1923, as the

first aircraft to serve as a naval vessel. Her Indian name, which means *Daughter of the Stars*, was chosen by Mrs. Edwin Denby, wife of the then Secretary of the Navy, who christened her. The name proved so popular that the ZR-1 letters were later removed from her bow.

The ship had many firsts to her credit. She was the first dirigible to be inflated with nonflammable helium; the first to be moored to a floating mast; the first to fly completely across the country.

Her official mission was to serve as a scout for the fleet, and she participated in several exercises, scouting an imaginary enemy. But, by being first, *Shenandoah* had another role to fulfill: that of a national symbol. Requests literally poured into the Navy Department asking the ship to fly over this and that town to generally display herself as a tribute to Yankee ingenuity. When possible, these requests were honored, because, in truth, the people had every reason to feel a surge of pride when *Shenandoah* floated majestically overhead.

Star Daughter left her hangar at Lakehurst September 2, 1925, for just such a tour. The route included a flyover of the Ohio State Fair at Columbus, then on to Scott Field, Ill.; Dearborn, Mich., where Henry Ford had built a mooring mast; to St. Paul and the Minnesota State Fair; then back to Lakehurst. LCDr. Zachary Lansdowne, *Shenandoah's* commanding officer, had misgivings about this flight, primarily

because of the uncertain weather in the Midwest at that time of year. His apprehension was justified. Less than 16 hours later, a freak line squall crushed the ship, and Lansdowne, with 13 others, was lost.

But the replica airship has repeated at least part of that last flight. She made a historic return to NAS Lakehurst June 26-27 for the station's 50th anniversary, the first true rigid to visit there since ZR-3, USS *Los Angeles*, was dismantled in 1940. The route, "flown" both ways by moving van, covered approximately the route of 45 years ago. Plans are under way to fly the replica at the 1971 Ohio State Fair, completing that leg of the journey.

The replica had quite a journey—just getting built!

Actual construction was done by two retired North American Rockwell aircraft workers, Jack Duckworth and Joe Kohot. They spent almost two years and 1,400 man-hours completing the comparatively diminutive ZR-1. Plans were obtained from the National Archives and, after lift calculations were made, the model was planned to 1/23 the original size. The balsa structure is 30 feet long and four feet in diameter at the widest ring. The mylar gas cell is in three sections, and the outer cover is model aircraft silkspan misted with gray dope. The five engines are small d.c. electric with battery power from a ground tether pack. Dead weight is only 12½ pounds, with approximately 220 cubic feet of helium.

cating and tracking various fleet units.

Upon release from her assignment, the airship began her trip back to Moffett Field. Nearing Point Sur on the California coast, *Macon* began to encounter lowering ceilings, rain and severe turbulence. Approaching the Point Sur lighthouse, the airship was struck by a violent gust of wind which caused the progressive disintegration of her upper fin and led to the puncture and deflation of three of the after helium cells.

Attempts to bring the situation under control proved futile and, at approximately 5:40 p.m., *Macon* settled into the ocean. Since the situation had progressively worsened over a period of nearly half an hour, the crew had sufficient time to prepare for their escape

once the airship came to rest in the Pacific.

Of the 83-man crew only two were lost. *Macon* finally sank from sight about 6:20 p.m. carrying with her four F9C's and the hopes of rigid airship enthusiasts.

Though *Los Angeles* still remained intact in the hangar at Lakehurst, she never flew again. Fire which destroyed the German passenger zeppelin *Hindenburg* at Lakehurst, May 6, 1937, sealed the fate of the rigid airship.

Only one more airship was to come into existence, LZ-130/*Graf Zeppelin II*, which made its first flight in September 1938. It was taken over by the Luftwaffe and prior to the beginning of World War II was used by the Germans for ECM activities, flying along

England's east coast to locate and analyze the British early warning radar network.

Los Angeles was used for mooring mast tests and structural studies during her decommissioned life in the 1930's but, in February 1940, she, too, came to her end and was dismantled for her materials. *Graf Zeppelin II* swiftly followed her into oblivion. On the third anniversary of *Hindenburg's* accidental destruction, LZ-130 was blown up along with her hangar at Frankfurt, Germany, on orders of Reichsmarschall Hermann Goring.

Thus ended a 40-year era in which rigid airships competed for a place in military and commercial air service, sometimes with success, but often with accompanying tragedy.

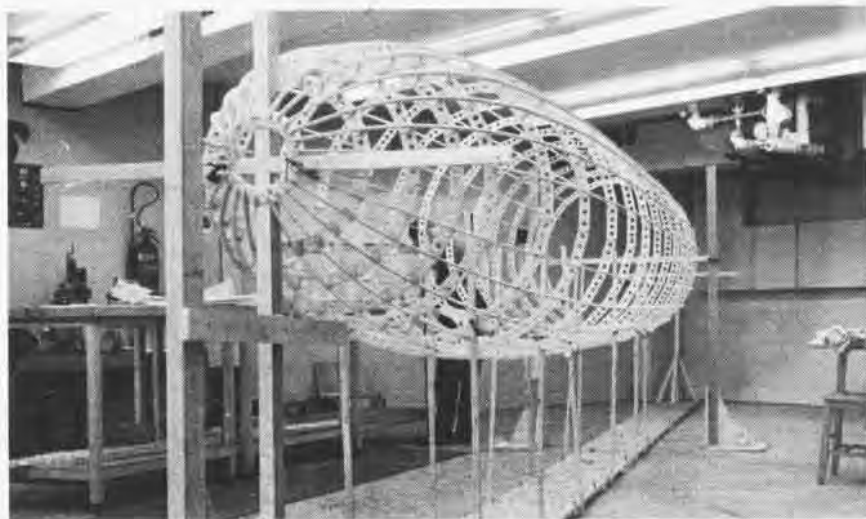
-in Columbus, Ohio

There are only a few deviations from true scale. The original ship had intermediate rings between the main frames, and a single, triangular keel tunnel and catwalk that ran her 682-foot length. These were left out to save weight. The wire main frame bracing of the original was replaced in the model by nylon lacing between the rings.

The *Shenandoah* was a beginning, the beginning of an era that many feel never got a proper hearing or proper technological boost. Who knows, perhaps her namesake will rekindle, in a small way, our pride in the old giants.

On April 24, 1971, the day the replica ship was christened, Mrs. Peggy Lansdowne Hunt sent this message "I wish with all my heart that I could be with you today. I have seen the beautiful model of USS *Shenandoah*. The original was the pride and joy of my father, LCdr. Zachary Lansdowne, and he would be so pleased to have his ship honored in the state where he was born. God speed to her in her endeavors."

By Lewis H. Gray



While only eight *Sparrowhawks* were purchased by the Navy, they hold a unique position in Naval Aviation history. Carrying the designation of F9C, these diminutive fighters were the only combat aircraft to operate from an airborne base as standard procedure. Though the F9C-1 did not prove acceptable to the Navy for carrier operations, it had one characteristic which led to its becoming an operational aircraft — its size.

It was small enough to pass through the hangar doors which had been previously designed into the airships *Akron* and *Macon* and its performance was superior to its two rivals, the XFJ-1 and XFA-1. The first *Sparrowhawk* was delivered to the Navy in March 1931 and, after a short period of testing at NAS Anacostia, was fitted with a skyhook and sent to NAS Lakehurst to begin hook-on tests on *Los Angeles'* experimental trapeze.

An improved version, the XF9C-2, with more horsepower and a slightly gulled wing, was next produced, aimed specifically at hook-on operations. As a result, six F9C-2 production models were ordered to equip the HTA detachments of the two aircraft-carrying airships and were delivered in September 1932.

Both *Akron* and *Macon* could carry four F9C's internally in their hangar bays. For quick launching, two aircraft were suspended externally, one on the retractable trapeze and one on a fixed "perch" a little further aft. In overwater operations, the landing gear was removed and an auxiliary fuel tank installed below the fuselage.

Originally planned as fighter protection for the giant airships, the *Sparrowhawks* eventually were found to be most effective when used as scouts to extend the reconnaissance capabilities of *Akron* and *Macon*. One F9C remains in existence in the National Air Museum.

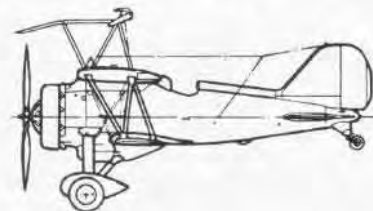
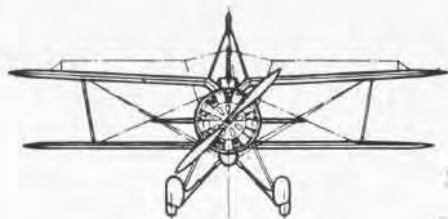
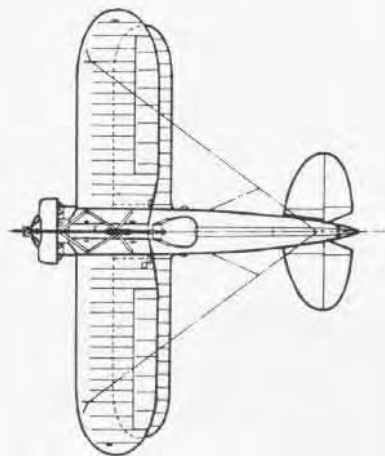


rowhawk



F9C

Length	20'7"
Height	10'11½"
Wing span	25'5"
Engine	Wright R-975
Horsepower	438
Maximum speed	176 mph
Service ceiling	19,200 ft.
Range	350 miles
Gross weight	2,770 lbs.
Armament	two .30 cal. machine guns





DAM NECK

The resort city of Virginia Beach, Va., shares its celebrated Tidewater shoreline with a Navy neighbor that frequently erupts in gunfire. Sprawling over 1,100 sandy acres is the Fleet Anti-Air Warfare Training Center, Dam Neck, which, among other claims to fame, features the Navy's only "live" gun firing line within the U.S. continental limits. Almost daily the visitor to Dam Neck can witness a display worthy of the Fourth of July as

guns ranging from .50 caliber to 5-inch are fired by personnel from the U.S. Atlantic Fleet Gunnery School. High above, Navy aircraft may be winging their way out to sea for bombing and gunnery practice.

Shooting at waves and clouds may be fine during the initial familiarization stage of weaponry, but to build actual proficiency in the individual who mans the weapon, realistic and challenging targets must be used. This requirement,

more demanding than one would suspect, is met by a small group of talented aviation personnel assigned to Fleet Composite Squadron Six, Detachment Dam Neck.

To spend a day with the detachment is to appreciate a hard working unit with a unique and interesting mission. There is no typical day for the Dam Neck Det. Variety is provided by the type of weapons to be fired during a particular day and the corresponding

By Michael G. McDonell
Photos by JOC Dick Benjamin



Preparing to launch a target drone requires skill and manpower. At left, VC-6 Def. Dam Neck technicians position on MQM-74A just prior to launch. ATNAN Riehl prepares a drone for a rugged workout over Chesapeake Bay.

DRONE SHOOT

type of drone target to be employed in the most challenging manner.

"You should have been here last week," ATNAN Bill Riehl interrupts his work on an MQM-74A subsonic target drone to tell you. Squinting against the dazzling sun, he indicates the low lying sand dunes that range from the unit's wooden headquarters to the beach with a sweep of his arm. "This whole area was filled with Marines. We had some *Hawk* missile

batteries down here, and those missiles were really something to see. A few seconds after launch, you lost them from sight."

You sense, from the admiration in his voice, that it must have been a tough day for the drones. He confirms it. "We lost some drones to them. They were really on target." You conjure up the image of the sleek, cruciform-winged *Hawk* swooping in at Mach 2 on a snaking target drone.

Bill Riehl goes back to connecting the last of several wires to the MQM-74's control box. Zero nine thirty is launch time and this drone has a schedule to meet.

Thundering overhead, a flight of F-4's from nearby NAS Oceana sparkles in the sunlight, heading out to sea. "They're waiting for the shot to begin," the young airman announces.

From atop a sand dune, the red flag and the whine of turbines announce

the launch area. The top of the dune has been leveled off and covered with black top.

Standing near a small whitewashed building, Lt. James B. McPherson, officer in charge of VC-6's Detachment Dam Neck, watches four AT's make their final check on an MQM-74, attaching two JATO battles to its Day-glo red body. He interrupts his surveillance to give you a rundown on the outfit.

"I'm the only officer in this 20-man detachment. Normally the officers assigned to the detachments are NFO's. Usually younger officers are assigned to the squadron's five deployed seagoing detachments."

Providing target services for the U.S. Atlantic Fleet, the squadron does not deploy as a unit. It operates on the detachment concept. The parent command, stationed at NAS Norfolk, operates five deploying detachments and one non-deploying unit, Det. Dam Neck.

"Since this is the only shore duty with the exception of the parent command," Lt. McPherson continues, "we have mostly limited duty officers assigned to this unit. We have more people than the other detachments and do roughly three-fourths of the squadron's actual operations. The squadron provides maintenance and acts as a regular aircraft maintenance department. If a piece of gear goes down, we send it back to them. They repair it or make the necessary changes and then return the gear to us.

"There are no aircraft assigned to

the squadron — we operate only target drones. The "jet" that you see is the MQM-74A. We also use the propeller-driven MQM-33A, an Army drone of which there are only a few left. We ran out of the Navy's version, the MQM-36. We also use a drone boat, the *Septar*."

The squadron operated a detachment at Warren Grove, N.J., until its formal disestablishment on January 5, 1971. It operated the QM-56 land mobile target, providing air-to-surface gunnery training for Atlantic Fleet aircraft. These tracked vehicles and their related equipment were subsequently transferred to the QM-56 mobile land target operations at MCAS Cherry Point, N.C.

Det. Dam Neck has an important additional mission: operational training for all controllers and maintenance personnel assigned to VC-6's deploying detachments.

"The lieutenant that I relieved as officer in charge personally trained me," the lieutenant explains. "I was trained for several months, both in maintenance and in actual drone control operations, before I took over the detachment."

In addition to supervising maintenance personnel training at Dam Neck, Lt. McPherson is personally training CPO selectee ADR1 Charles P. Bowling in drone control. The lieutenant believes that he may become the Navy's first qualified enlisted drone controller.

The pitch of the whining MQM-74 increases and a signal is given to Lt.

McPherson that the drone is ready for launch. All hands head for a nearby bunker where the lieutenant grabs the microphone of a PRC-25 radio and is in contact with the control van several hundred yards to the right of the launch pad. ADR1 Bowling will fly this one.

Power on the drone is increased and Lt. McPherson's free hand goes up. His fingers mark the seconds to launch and, as the last finger disappears, there is a shattering roar as the JATO bottles ignite. Through a slit in the bunker, you can see that the pad area is obscured in smoke. Looking over the sand bags, you see the MQM-74's fiery tail blazing brilliantly, downrange, over the shining Chesapeake Bay.

The lieutenant, still on the mike, repeats a message: "Abort!" The mission has been cancelled because of a control malfunction, and an electromagnet aboard the drone automatically releases a parachute housed just aft of the wing.

About a mile offshore the drone can be seen swinging gently under the billowing canopy. Upon entering the water, it automatically separates from the parachute with only two feet of its overall 11'4" length bobbing buoy-like on the surface.

Thousands of dollars are floating in the Chesapeake in the form of that drone: it has to be retrieved. A call is made for a recovery vehicle to make the pickup.

Minutes later a bellowing silver monster rises over the dunes, its six-foot-high wheels carrying it easily through the sand as it heads for open water. The monster, on loan from the Army, is called LARC, an acronym that stands for Amphibious Resupply Cargo Lighter.

Lurching into the surf, the vehicle heads for the drone and the crew prepares for the ordeal of getting it aboard. The drone is still fully fueled, and the three-man crew, armed only with a boat hook, must manhandle its 300 pounds aboard the LARC and then onto a stand. When this part of the recovery is completed, aching arms turn to hauling in the parachute which is filled with so much water that it could serve as a sea anchor.

Back on shore, a second launch is being prepared. JATO is attached, all systems are checked out and the countdown begins. Ignition is successful and the MQM-74 roars out over the water, passing the laboring recovery crew. It



Michael G. McDonell

is headed towards the F-4's that wait for it several miles above the Bay.

From the MSQ-51 van, monitor personnel watch through high-powered periscopes as the drone's fiery tail recedes from view. The inside of the van resembles a freight car lined on both sides with electronic equipment. It is dark, except for a dimly lit area midway down the narrow corridor.

Lt. McPherson sits at the control console, "flying" the drone and monitoring its progress on a large, illuminated viewing screen which consists of an overlay of the target area and an automated plotting arm which visibly traces the drone's route and maneuvers. His hands are at the control panel, guiding the target as it simulates an attacking aircraft, closing at a speed of 300 knots and presenting the "challenge" needed to sharpen the skills of the *Phantom* crews.

Standing near the lieutenant is Duane Jater, technical representative from the electronics systems division of General Dynamics. His task is to keep the tracking and control systems in an up status.

Behind both of them, an intent gallery of "drone watchers" has assembled.

The OinC provides a running narrative. "They're coming in on it. Closing. They're firing. That was close."

The line on the screen waggles to and fro as the illusive MQM-74 attempts to evade its attackers and their 20mm cannon fire.

After 30 minutes of "aerial combat," the radio controlled drone is flown in and parachuted offshore. Word is passed that the *Phantom* flight leader has announced a "good show" on the target's performance.

Operations in the van shut down.

Down the road, propeller-driven MQM-33's are being towed to the launching area and the radio controlled *Septars* are being worked on. During tomorrow's shot, they will become the targets for 5-inch guns, and the sky and waves will be shattered with air bursts and the whine of drones.

But that is a different story, a different challenge for Det. Dam Neck.

At left, strong arms recover a 300-pound drone. From top: Dam Neck's drone control operators, Lt. McPherson and ADRT Bowling; inside the control van, Lt. McPherson "flies" the drone as Bowling and Duane Jater look on; a drone heads for the open sky, right.





Ltjg. David N. Hartman, provisioning officer for the F-14 Tomcat, is equally at home in the cockpit of an aircraft or at his desk.

Pilots who fly the Navy's aircraft and mechanics who service them must be confident that their aircraft are ready to carry out their mission — from takeoff to touchdown; they must feel certain that a mishap due to mechanical failure will not become a subject for Grampaw Pettibone.

It is the mission of the Aviation Supply Office, Philadelphia, Pa., to ensure that confidence by making aviation spare parts available when and where they are needed.

ASO, under the command of Rear Admiral Stuart H. Smith, SC, is the Navy's inventory control point for aviation spare parts and equipment, supporting the \$13 billion inventory of aircraft that carry out the Navy's mission all over the world. Whether operating from an aircraft carrier in the South China Sea or the Mediterranean, or from a naval air station stateside or overseas, Navy aircraft are dependent on the spare part support of ASO.

The great expansion of Naval Aviation in the early 1940's made centralized control of aircraft spare parts inevitable and, in October 1941, the Aviation Supply Office was organized at what was then the Naval Aircraft Factory.

Today ASO determines requirements, processes requisitions, purchases material, provides technical and

"Secretary of the Navy John Chafee assures me that future flag selection boards will continue to be advised of the special needs of the service. They will be given the strongest advice and encouragement to select not only those officers who have followed the traditional pattern of command at sea, but also those who have demonstrated their management expertise in the shore establishment in lieu of command at sea." — Admiral Elmo R. Zumwalt.

SHORE OPPORTUNITY

By Ray Heim



Commander Robert Smiegocki, Head, Procurement Review Branch, and his assistant, Claire Reimer, examine technical drawings below. At right, Ltjg. Edward M. Werger, Jr., H-46 weapons manager, discusses rotor component with Mr. William Weathers, overhaul shop supervisor, at the Boeing-Vertol plant in Morton, Pennsylvania.



cataloging services, and allocates and controls material. This material includes aeronautical, photographic, meteorological, catapult and arresting gear parts and spares.

As a Navy inventory control point assigned DOD logistics programs, ASO also has the responsibility for international logistics programs under Grant Aid, foreign military sales, and cooperative logistics agreements. In addition, it performs integrated logistics support for Navy aircraft being operated by other armed services.

To support the Navy's 9,000 aircraft, ASO controls 340,000 stock items (about 200,000 more than the world's largest retail firm) with an inventory value of \$3.1 billion. In addition, ASO maintains a 300,000-item program support interest file which documents Navy aeronautical requirements for parts that are procured by the Defense Supply Agency.

The electronic nerve center of the Naval Aviation Supply System has adopted automated techniques for most of its major programs. Like any nerve center, its reflexes are conditioned by "signals" from the various parts of the system it controls. These signals are motivated by the day-to-day issues, receipts and requirements of supply units all over the world.

Here, too, is an automated program which schedules items for repair at naval air rework facilities, attempting

to reduce all the time out of service.

But computers cannot do the job alone. Conscience and imagination must take over where computers leave off. Enter people. Most of the military billets at ASO are filled by Supply Corps officers, but there are many important, interesting and career-enhancing assignments that call for the special expertise of line officers.

Assigned aviators, aviation maintenance officers and Marine Corps aviation supply officers are in unique positions, providing ASO with valuable knowledge and experience gained previously. Each has an excellent opportunity to enhance his career opportunities in new areas. At the same time, his tour of duty at ASO gives him an appreciation of the integrated military and industrial logistics so vital to the support of Navy and Marine Corps aircraft.

The line officer's technical know-how gained as a Naval Aviator, aeronautical engineer, specialist in photography, aerography, avionics, or in aviation maintenance is invaluable in many areas. He knows the fleet and its needs, the strengths and weaknesses of spare part support. This knowledge helps him establish and maintain all-important lines of communication between ASO and the activities it supports. And he is given an opportunity to try out any new ideas he may have brought with him from the fleet.

He may have an opportunity to learn how private industry, large and small, operates — working with all levels of an organization responsible for filling the requirements of a spare part contract.

He may act as liaison between ASO and high level personnel of other U.S. armed forces, as well as the military personnel of foreign countries involved in the International Logistics Program.

He may be assigned to the Technical Division, which serves as the technical link between ASO inventory managers and the engineers; maintenance managers; and technicians from the Naval Air Systems Command, DOD activities, field and fleet commands, and industry. The division is primarily responsible for the technical review, certification, packaging and provisioning of aeronautical spare parts and ground support equipment.

The Technical Division is headed by a line officer captain, the senior line officer assigned to ASO. He is responsible for a complement of three officers and 217 civilians, the majority of whom are aviation equipment specialists and technicians. Responsibilities of a line officer in the division include the provisioning of end item and bit and piece support for repairables at conferences. His line experience is invaluable when decisions on technical matters dealing with aviation material must be made. He provides technical assistance to



Checking the wiring in a CH-46F at the PAR shop at Boeing-Vertol are Ltjg. Werger and Mr. Richard Drake, shop supervisor, left. AV-8A weapons manager, Major William H. Sackett, USMC, right, talks about the peculiar features of the aircraft with Squadron Leader Ronald K. Broadfoot, RAF, United Kingdom liaison officer, below.



users of aviation material and technical and logistical components of the military forces. He gives policy guidelines and engineering assistance to technical management functions involved in procurement. In the procurement of high dollar material, he makes sure that all technical requirements, drawings, and recommendations are included, assuring maximum cost savings.

The primary mission of the Weapons Systems Division is to coordinate ASO's supply support efforts by weapons system, beginning with the development phase and continuing through its complete life cycle. This coordination is provided by Weapons Managers — many are Naval or Marine Corps Aviators.

Preparing the spares support program for a new weapons system, the weapons manager works with the system from the planning stages to fleet delivery. He works with and knows the capabilities of the newest weapons systems long before they are introduced into the fleet. A weapons manager is responsible for keeping his support program on schedule — troubleshooting when schedules slip. As part of this responsibility, he coordinates the progress of the work of other organizational segments of ASO as they relate to his particular weapons system.

Line officers also have important billets in the Provisioning Coordination and Stock Control Divisions.

Provisioning is the process of determining the range and quantity of spare and repair parts, special tools, and test and support equipment required to support and maintain an equipment or a weapons system for an initial period of service.

The most important work of this division is done by provisioning teams which consist of representatives of ASO, the Naval Air Systems Command, fleet and field commands, contractors and other DOD agencies. These teams determine long-range provisioning requirements and schedules through logistics support and integrated maintenance management team conferences which cover methods to be used for effective material support.

As a staff assistant to the Provision Programs Branch, a junior line officer is currently working on the provisioning of the F-14A. He is responsible for setting up provisioning conferences with contractors so that a provisioning team can determine the support needed for the *Tomcat*. He visits contractors' plants during provisioning "probes," informing them of the data needed by ASO and providing background for provisioning conferences. These probes also establish what data the contractors already have.

The Allowance Control Division provides listings of materials designed to provide support to meet readiness capability. It is responsible for the

development and maintenance of allowance lists and related data, controlling the development, maintenance and distribution of Aviation and Shore Consolidated Allowance Lists, Coordinated Shipboard Allowance Lists and the Aircraft Equipment Configuration List. The division also performs analytical functions associated with the collection and review of maintenance usage data.

The specific line officer billet in the division is Head of the Allowance Development Branch. His responsibilities include the analyzing of collected maintenance usage data and recoverability rates of aeronautical items. He determines the range and depth of items required to support and assure aeronautical readiness. He manages and monitors the preparation, maintenance and revision of allowance lists and is responsible for developing, maintaining and modifying rotatable pool item lists for fleet, Navy industrial and commercial rework purposes.

A line officer's tour of duty at ASO, with the responsibility of managing multi-million dollar programs, gives him experience at the middle or top management level. He returns to the fleet with a broader view of Naval Aviation and the satisfaction that he has helped improve the quality of the hardware being used in the fleet and that the service given to his fellow officers and men is better.

NavAirSysCom Field Activities

By JOC Dick Benjamin

WHO'S MINDING THE

A hand without fingers is almost useless. Although the hand is the hub of activity for one's arm, the digits are needed for the detail work.

In much the same way, the nerve center for support of Navy and Marine Corps air weapons systems, the Naval Air Systems Command Headquarters, needs digits to perform the detailed support required. Its fingers are its field activities, spread throughout the U.S. and at numerous bases overseas.

Two types of activities, Class II and III, have responsibilities to support air weapons systems. They range in size from large air stations to small representative offices.

Class II activities, responsible to various operational commanders, provide the direct support that is so essential to the daily life of an aviator and his aircraft. They include Navy and Marine Corps air stations, auxiliary air stations and air facilities from Atsugi, Japan, to Sigonella, Italy, naval stations and Marine barracks and detachments from Adak to Trinidad, and air training commands, air technical training centers and Navy and Marine air reserve training units throughout the U.S.

The day-to-day support provided to fleet aviation by these activities is reciprocated by NavAirSysCom with assistance in construction, real estate acquisition and disposal, airfield landing aids, design criteria for airfields, maintenance and operational facilities, and equipment installation.

The command also provides guidance and assistance in organization, procedure, budgeting, accounting and staffing, as well as utilization of per-

sonnel, funds, material and facilities.

Class III activities differ in that they support, contribute to or are extensions of the command's functions and are under the operational control of NavAirSysCom. They design, develop, test and/or produce items that make up complete air weapons systems and ground support equipment.

One such activity is the Naval Air Engineering Center, Philadelphia Pa.

NAEC tasks begin with assisting in concept formulation and contract definition phases for new air weapons systems and aviation ships, and in determining requirements for ship installations and ground support equipment. Another vital function is quality control of commercial procurement of critical ship installation items, such as crossdeck pendants and barricades.

Other responsibilities include programs and studies for carrier suitability of aircraft, ship suitability of air-launched weapons and the aeronautical requirements of ships. NAEC also manufactures, modifies or overhauls material and equipment to meet high priority fleet emergency programs, and designs, engineers and procures improvement modifications to ground support equipment.

One such item is the Integrated Catapult Control Station and Monitor Control Console for use during launch operations. This new equipment will be installed aboard USS *Nimitz* (CVAN-68).

In addition, a stabilized glide slope indicator and other visual aids are being tested to assist in recovering

aircraft aboard non-aviation ships.

Other items developed by the center include a portable jet engine test stand that will test all models, dollies for servicing *Talos*, jet blast deflectors, and a bomb transporter for the triple ejection rack.

Another NavAirSysCom finger is the Naval Avionics Facility in Indianapolis, Ind. Situated on a 163-acre site in the eastern part of the city, the facility develops the electronic devices associated with naval weaponry. The single-story main building covers 11½ acres, half of which is set aside for assembly and quick response manufacturing purposes.

A technical pace-setter in many fields, the facility has developed numerous products now in use by all military services. These include radar, bomb racks, rocket launchers, missile-borne and shipboard telemetry, fire control computers, earth-orbiting satellites, guided weapons and field test equipment.

To support its work, NAFI maintains analog and digital computer installations, outer space simulation chambers, an anechoic chamber, super-clean rooms, tape-controlled electronic machine tools and test equipment, and environmental test facilities.

The facility has been involved with the A-7 series, A-6A, *Raven*, *Corvus B*, *Terrier*, *Talos*, *Polaris*, *Walleye*, A-4 sight modifications and development of meteorological data receiver/recorder sets.

Still another field activity on the list is the Naval Air Test Facility, Lakehurst, N.J. NATF was established

*Radar reflectivity is precisely measured
in this anechoic chamber at the
Naval Missile Center, Point Mugu.*

STORE

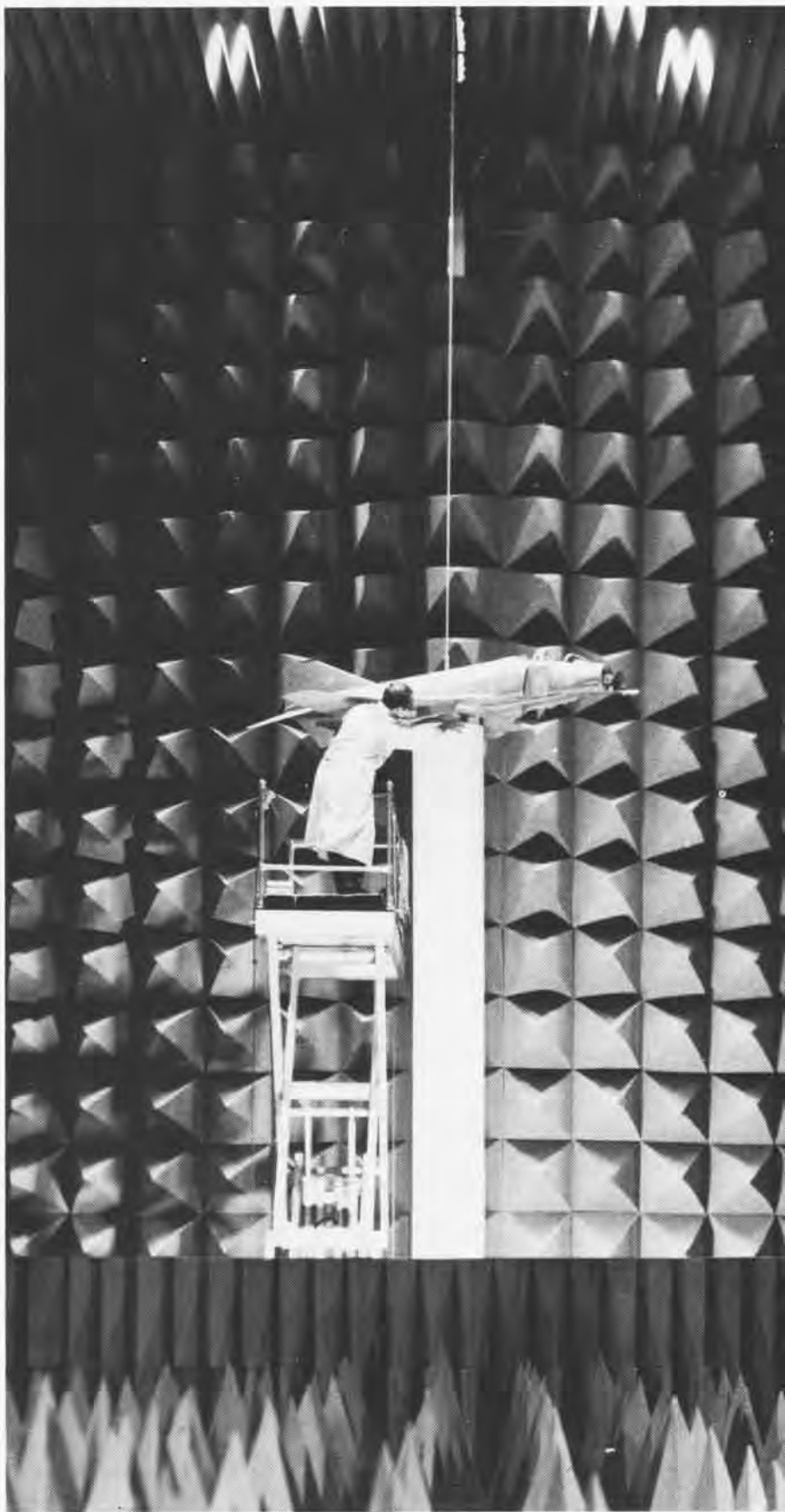
in 1956 to test and evaluate launch, recovery and visual landing aids systems and related equipment at all stages of development. It provides test sites, facilities and support services for developmental tests of ship installations equipment.

Five recovery system track sites enable NATF Lakehurst to develop and test aircraft recovery systems and their components. With proper configuration of test equipment and adjustment of thrust setting, personnel are able to simulate any service environment or aircraft energy level. Tests can also be conducted — with weighted deadloads — at energy levels and speeds beyond what is expected of present day Navy and Marine aircraft.

The sites are used to develop and evaluate new types of wire rope for arresting gears, emergency and expeditionary arresting gears with high absorption and high cycle capabilities, shipboard barricades, the Marine Corps' M-21 arresting gear for short airfield for tactical support, and improved components such as the anchor and movable deck-sheave dampers, which are designed to alleviate the severe shock loads applied to the arresting cable.

An arrested landing site is used to study aircraft/arresting gear compatibility and the effects of arresting gear modifications on aircraft performance.

Also available is an elevated catapult used to evaluate the operational and maintenance characteristics of the latest shipboard launching equipment prior to installation on board a





Personnel at NATF Lakehurst hook a bridle to an F-4 in preparation for a catapult test, above. Note the integrated catapult control station in the foreground. A similar station, with the monitor control console, below, will be installed in the carrier Nimitz.



carrier. Tests of newly developed or modified catapult components and systems are conducted at this site.

Aircraft availability and performance excellence depend upon reliable, high performance propulsion systems. The Naval Air Propulsion Test Center in Trenton, N.J., provides them.

Simulated tests performed at NAPTC reduce the time and expense of engine flight testing, accurately measuring engine performance which cannot be done in flight while eliminating the inherent danger of experimental flight.

The two major departments are Aeronautical Turbine and Aeronautical Engine. ATD tests and evaluates large development/production turbojet and turbofan engines. The department's facilities provide flight regime simulation over a wide range of Mach numbers and altitudes. Engine steady state and transient testing is done in areas such as water ingestion, icing, missile exhaust gas ingestion and inlet distortion.

Other responsibilities include studies and reports on the state-of-the-art for compressors, turbines, infrared suppression, thrust augmentation systems and engine monitoring instrumentation. ATD has evaluated the engines for the A-4, A-6, A-7, F-4, F-14 and S-3.

AED researches, develops, tests, and evaluates turboprop and turbo-shaft engines, aircraft engine accessories, fuels and lubricants. Plant facilities are capable of simulating the severe environmental conditions aircraft encounter.

Aircraft propulsion systems and components are subjected to extreme temperature, altitude, salt air, icing, sand and dust environments to determine their operational deficiencies. Applied research, development and engineering work is then performed to improve or correct any deficiencies.

Laboratory experiments and research are also accomplished on motor disks, inflight refueling nozzles, fuel filters and detectors for fuel contaminated with solids or water, and advanced fuels and lubricants.

Located at Kirtland Air Force Base, Albuquerque, N.M., the Naval Weapons Evaluation Facility has a mission unlike any of the others — to evaluate, test and do safety studies on nuclear weapons systems and the aircraft in-

tended for delivery of such weapons.

To get the job done, the facility participates in the nuclear weapons effects test and protective equipment program. Feasibility studies on new concepts and design criteria for future nuclear weapons are also performed and stockpile-to-target sequences on assigned weapons systems are prepared and maintained.

Compatibility, vulnerability, evaluation and acceptance programs are also conducted.

As might be expected, the facility provides nuclear weapons safety information which assists in preventing nuclear weapons accidents and/or incidents. Nuclear and conventional ordnance and armament equipment manuals are verified to insure techni-

vides support for DOD and other government agencies for launching, tracking and data collecting in guided missile, satellite and space vehicle research, development and training.

PMR, one of six national ranges in the United States, provides support to a wide variety of users including private contractors working on government-sponsored systems, the Atomic Energy Commission and the National Aeronautics and Space Administration.

Commander PMR, has primary safety responsibility for all surface missile shots in the Pacific, including any from *Polaris* submarines, and has charge of the Sea Test Range which extends 200 miles offshore.

One of the biggest users of the

tical underwater range which can simultaneously track and record the positions of a number of ships, submarines, underwater weapons and aircraft. In addition to being the ASW exercise support center (*NANews*, January 1970), the test range facility supports fleet exercises involving air-to-air, surface-to-air, air-to-underwater and mine warfare weapons.

Barking Sands also provides services to the Department of Defense and other government agencies. Typical of national range programs supported with the range's radar and 30-foot disc telemetry antenna are mid-course tracking of ICBM's launched from Vandenberg AFB and orbit tracking of satellites launched from Cape Kennedy.

During space missions, Barking Sands personnel keep a watchful eye on weather conditions and send sounding rockets aloft to probe the atmosphere and report on atmospheric conditions.

Also on the West Coast is the Navy Space Systems Activity, Los Angeles, responsible for the development of the Navy's space systems. The activity conducts long-range studies and analyses to identify, investigate and advance the use of space in naval fields of interest. These include navigation, communication, surveillance, meteorology, geodesy, oceanography, space defense and environment.

NavSpaSysAct researches, develops, designs, tests and evaluates advanced components and subsystems aimed at improving engineering performance and operational effectiveness of space and support systems; it is presently working on a satellite communications project and unit shipboard readout equipment.

One of NavAirSysCom's better known digits is the Naval Air Test Center, Patuxent River, Md. NATC is the proving ground for air weapons systems, components and related equipment. A systems technical and service suitability is determined here.

As coordinator and overall reporting authority for NavAirSysCom in aircraft and components' test and evaluation, NATC assists in monitoring development of air weapons systems, conducts flight evaluations, recommends design changes, and evaluates the adequacy of the various operational and environmental tests.

field activities are vital digits which help ensure that air weapons systems are complete

cal accuracy. Checklists and emergency destruct procedures are prepared and maintained.

When an aircrew goes aloft, there is one item each man does not want to be without — a reliable parachute. The Naval Aerospace Recovery Facility, El Centro, Calif., makes sure he has it.

This is the facility that tested the F-14 crew escape system, performing a series of seat ejections to establish the trajectory of seat and occupant from various flight attitudes.

Developing, testing and evaluating parachute systems is only part of the job. These systems must also be integrated with survival, locator and rescue devices.

NavAeroRecovFac provides technical assistance to the Naval Missile Center, Point Mugu, Calif., helping to develop and qualify biomedical and physiological instrumentation and research. Technical assistance is also provided to the Naval Ordnance Laboratory, White Oak, Md., in the development and ballistic evaluation of stabilization and deceleration systems for air-launched ordnance items and related instrumentation.

Research and development of special logistics aerial delivery methods, techniques and equipment are also performed.

Further up the California coast is the Pacific Missile Range. PMR pro-

range, the fleet is provided target services. The biggest user, however, is the Naval Missile Center, which tests and evaluates naval weapons systems, guided missile subsystems and related command support systems.

The center's integrated test station is evaluating the complex avionics system of the *Tomcat*, including the AWG-9 missile control system.

NMC performs BIS trials for integrated airborne weapons systems, provides field engineering services to fleet units, and provides electronic warfare engineering management and support during equipment development, aircraft installation and operational employment.

The center also develops, tests and evaluates airborne and surface target systems and related devices, and maintains a target support capability at the Point Mugu complex. Other responsibilities include engineering cognizance of operational air weapons and related systems, and performance of research and development in human engineering, behavioral, training and other life science aspects of advanced airborne weaponry.

Another NavAirSysCom facility in the PMR chain of command is the Barking Sands Underwater Test Range in Hawaii.

Located on the island of Kauai, Barking Sands is the Navy's only tac-

Units at Patuxent also do research, development and experimental testing of techniques and concepts of aircraft operations from carriers; promulgate minimum pilot and aircrew checkout and refresher criteria for new model aircraft; conduct programs on aircraft inspection, scheduled maintenance and personnel training requirements; and conduct test pilot training (NA News, February 1971).

Also at Patuxent River is the Naval Aviation Integrated Logistic Support Center, the cognizant field activity for technical direction and coordination of integrated logistic support functions performed by NavAirSysCom and its field activities, program support inventory control points and contractors.

The support center ensures that timely and integrated logistic support is provided to the fleet for Naval Aviation systems and equipment through development and application of advanced ILS procedures and techniques. Principal logistic support problem areas are analyzed, appraised and corrected.

To keep the fleet supplied, the center determines contract requirements for the support of specific weapons systems and equipment programs, and evaluates contractor performance in meeting these requirements. On-site detachments, such as the resident integrated logistic support detachment for the F-14, are maintained at contractor plants.

In addition, requirements for improvements in maintenance technology, diagnostic aids, non-destructive testing, corrosion control, cleaning, preservation and new repair techniques are developed by the center.

Two service units under NALSC

aeronautic technical and maintenance management information.

ComNavAirSysCom also has Atlantic and Pacific representatives with headquarters in Norfolk and San Diego, respectively. They represent the Commander at fleet, training and operating commands in designated geographic areas on matters of aeronautical material services and technical support necessary to assure continuing operational readiness.

These representatives provide accurate and timely analysis and determination of requirements, effective and economic utilization of industrial resources, management of physical assets and surveillance of technical and material requirements. They also exercise command over the assigned Naval Plant Representative Offices and the Naval Air Rework Facilities.

The plant representatives provide liaison between production plants and NavAirSysCom.

Naval air rework facilities perform a complete range of depot level rework operations on designated weapons systems, accessories and equipment. They also manufacture parts and assemblies as required, provide engineering services in the development of hardware design changes, and furnish technical and other professional services on aircraft maintenance and logistic problems.

Each NARF is assigned specific aircraft and engines. These are:

Alameda, A-3, A-7, P-3; J-52, J-65 and T-56.

North Island, F-4, F-8, C-2, E-2, H-3, H-46 and H-53; J-79, T-58 and T-64.

Pensacola, A-4, F-9, QT-33, T-2, H-34, T-28 and H-1; J-34, J-60 and R-1820.

Jacksonville, A-4, A-5 and A-7; J-52 and R-1820.

Cherry Point, F-4, OV-10, H-46, AV-8A; J-48, T-76, T-58, T-400 and F402.

Norfolk, A-6, F-8, and F-14; J-57, TF-30 and R-3350.

Quonset Point, A-1, S-2, S-3, E-1, H-3, C-1 and H-2; J-65, J-79 and J-71.

Program management being as complex as it is today, engineering services and technical and adminis-



trative support in management execution is a necessity. Responsible for providing the Navy's systems commands and their field activities with this support is the Naval Weapons Engineering Support Activity, Washington, D.C.

Getting the job done is not as simple as one might imagine — innumerable tasks are performed.

Management information computer systems are designed, developed and maintained to continuously track the procurement of naval weapons systems. Engineering, scientific and management problems are analyzed to determine if computerization is a feasible solution, and operations research techniques are applied to the analysis and solution of weapons systems problems in the areas of reliability, maintainability, quality assurance and logistics.

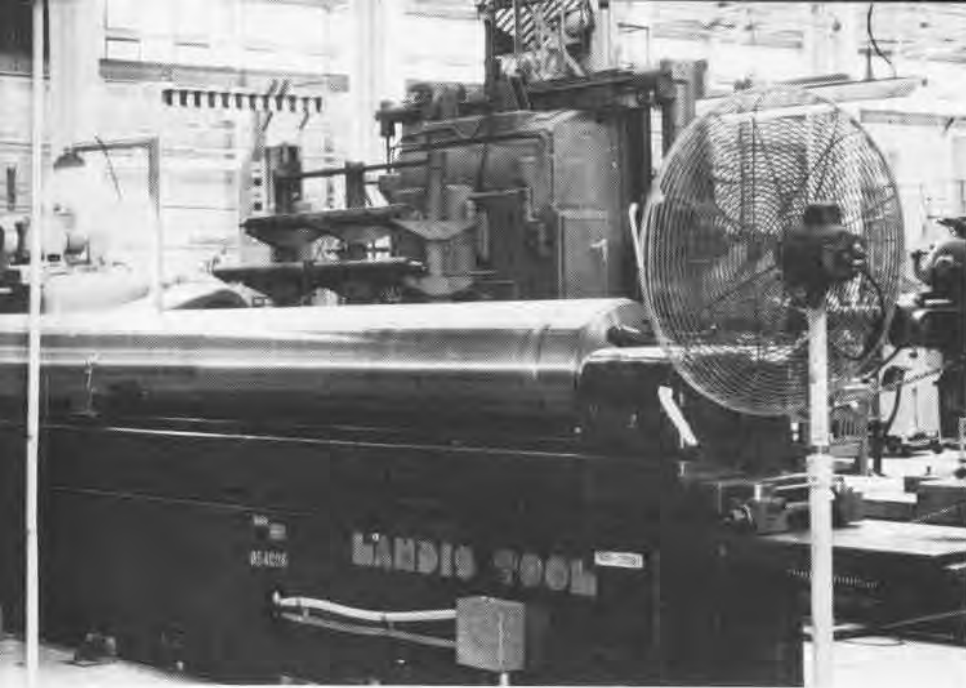
Engineering reviews are provided on designed test specifications for specific weapons, and quality engineering advice is provided in the evaluation of quality control systems in contractors' plants and Navy installations. The activity exercises technical coordination of the entire Navy Final Inspection Gage Program and administers the Navy Eastern Standards Laboratory.

Still other tasks include conducting production and value engineering technical reviews, determining special tooling and test equipment requirements, planning, organizing and directing systems reliability engineering and effectiveness programs;

a multitude of components for an air weapons system means a multitude of jobs to be done

are the Naval Aviation Engineering Service Unit and the Naval Air Technical Services Facility, both located in Philadelphia, Pa.

NAESU provides field engineering assistance and instruction to Naval Aviation activities in the installation, maintenance, repair and operation of all types of aviation systems and equipment. NATSF provides technical services in the development, preparation, publication and distribution of



The outside diameter of an 18-foot ram, a component of the Mark 7 arresting engine, is ground at NAEC Philadelphia, right. NAFI workers solder micro standard hardware modules used in the standard hardware program, below. The modules are used in missile, ASW and telemetry systems. Jumpers at the Naval Aerospace Recovery Facility, El Centro, test parachutes, bottom.

and developing and coordinating military standards and specifications.

The activity serves as NavAirSysCom's logistic documentation management agency and is responsible for integrated logistic, maintenance engineering and material management of ground support equipment.

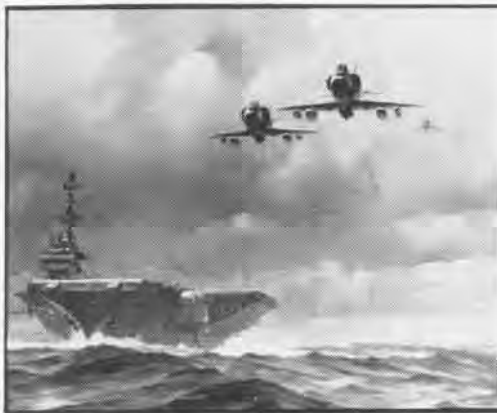
Navy photographic programs — sub-surface, surface, air and space — are managed, coordinated and implemented by the activity, which is also responsible for assisting NavAirSysCom in developing and Justifying plans for research, exploratory and advanced development programs.

Another activity which deals in photography, but in a different way, is the Naval Photographic Center, Washington, D.C.

NPC provides the Navy and Marine Corps with complete motion picture services, including art and animation, scripts, motion picture crews, music and sound effects, editorial services, and stage and television facilities. The center also provides photographic services, except intelligence photography, for the Navy Department and other approved government agencies; maintains the Navy's library of all still and motion picture films, sound recordings and other related photographic material, and conducts photographic research, development, test and evaluation of assigned projects.

Few hands have as many digits as NavAirSysCom, but then very few hands do as much detail work. Putting them all together, it's easy to see who is minding the hardware store.





at Sea with the Carriers

ATLANTIC FLEET

Independence (CVA-62)

Apollo 8 lunar module pilot, William A. Anders, visited *Independence* recently to learn about Naval Aviation. After a ride in one of VF-102's F-4 *Phantoms*, he commented, "We used to think we'd had a rough day if we had only 12,000 feet of concrete to land on. You guys are really something."



Miss America 1971 doffs her cap to USS *America* on annual Miss America visit to ship.

Anders was aboard *Indy* as executive secretary for the National Aeronautics and Space Council, which advises the President on aeronautics and space. He was impressed with the complexity and tempo of carrier operations, particularly with deck and night flight operations.

While the carrier was cruising off the Virginia coast, three men — a heroin addict, a narcotics detective and a doctor — spoke informally with crewmen about addicting drugs in two hour-long television shows. Ltjg. J. D. Knight, medical administrative assistant aboard, felt that the crew learned much from the three who were able to speak from firsthand knowledge.

Guadalcanal (LPH-7)

The 47,000th landing on board *Guadalcanal* was also her commanding officer's first carrier landing as pilot of a helicopter. Captain M. S. Snowden recently assumed command of the amphibious assault ship.

America (CVA-66)

America, cruising with the Sixth Fleet, has been serving as Rear Admiral Robert Crutchfield's flagship. The carrier is deployed with CVW-8 embarked and an F-4 squadron, VMFA-333, the first Marine squadron to deploy on a CVA in several years.

When Lt. Todd Givens of RVAH-13 caught a number three-wire in his RA-5C *Vigilante*, he marked *America's* 75,000th landing.

Commanding Officer Captain T. B. Russell, Jr., welcomed aboard Miss *America* in the person of Phyllis George, 1971 winner. Miss *America*

was paying her annual visit to *America* to rededicate the ship's C-1A named Miss *America* in 1967 — the first time a Miss *America* visited CVA-66.

Wasp (CVS-18)

Wasp received two gifts recently. The Rhode Island Navy League presented the carrier with a water color by William Atcheson showing the ship sailing in green waters with one of her planes above, an expression of appreciation to the carrier for hosting 200 League members on a short cruise. Another gift, a radio and tape player for the crewmen's library, came from *Wasp's* Officers Wives Club.

Eric Fain of Barrington, R.I., will not soon forget the unusual gift he received on his 11th birthday — a tour of an aircraft carrier and lunch with its commanding officer. The visit aboard *Wasp*, in port at Quonset Point, R.I., was the prize awarded to the top donor in a fund raising drive. The winner was Eric, whose family had made the donation in his name for his birthday. *Wasp's* Captain Kenneth B. Lyons hosted the celebration, which included lunch and birthday cake.

Forrestal (CVA-59)

Forrestal became the flagship of Rear Admiral Donald D. Engen, new commander of Carrier Division Four, when he relieved Rear Admiral George C. Talley, Jr., in ceremonies aboard the carrier. The latter reported to the Naval Air Systems Command in Washington, D.C. Admiral Engen was previously Director, Strategic Plans and Policy Division in OpNav.

A single carrier landing aboard

Forrestal, in an RA-5C, was both the 100th for AMCS Andrew W. Larson and the 500th for the pilot, Commander G. C. Vaught. The event made Chief Larson a centurion tail hooker on *Forrestal*. Both men are with RVAH-7 which is embarked on the carrier during its ninth Mediterranean cruise.

Lexington (CVT-16)

Maj. Sid Dodd and Capt. Lee Heiser, Air Force exchange officers, completed their carrier qualifications aboard *Lexington* as part of their training with VA-128 for combat duty in the A-6A *Intruder*. Their training includes the techniques of all-weather weapons delivery and carrier-based attack, and will be followed by a com-

bat tour with VA-165 aboard *Constellation*. Maj. Dodd will be assistant operations officer and Capt. Heiser will be NATOPS and air combat maneuvering tactics officer.

PACIFIC FLEET

Oriskany (CVA-34)

A televised re-enlistment? It happened aboard *Oriskany* on KRIS closed circuit television when Commanding Officer Captain Frank S. Haak gave the oath to four men as they stood behind a pyramid of \$34,501. This was the combined re-enlistment bonus given to AME2 Larry Messenger, BT2 J. P. Rogers, PM3 Hal Santos

and DC3 Michael Thomas. Their new orders gave all four shore duty (including Hawaii and Rota, Spain) which they considered almost as important a reason for shipping over as the bonus.

Hancock (CVA-19)

On June 2, *Hancock* sailed under the Golden Gate bridge for the first time in seven months as she arrived home at NAS Alameda after her sixth combat cruise to WestPac.

The 27-year-old attack carrier, the oldest of her type in the fleet, is scheduled for a yard period at the Hunters Point Naval Shipyard, San Francisco, Calif. This will be followed by a re-training period in preparation for her next WestPac deployment.

FIRE-FIGHTING VOLUNTEERS

Fire is the dreaded enemy of a ship at sea, loaded with highly flammable fuel and ordnance. The men aboard can't run away; they must stand and fight.

While almost every man on *Kitty Hawk* has been trained in fire fighting, there is also a Special Fire Fighting Team of 33 volunteers who are the first to respond to a fire and who attempt to extinguish it within the critical first six minutes. Each man on the team of two officers, three chiefs and 28

petty officers, with a background of fire-fighting schools, training and cross training, can handle any of the numerous jobs.

The most modern fire equipment is available; fog foam to deny oxygen to oil-fed fires in the engine room; light water stations on the flight deck augmented by two fire trucks; and Big Tillie, a crane used by the crash and salvage crew, ready to clear the deck of anything that might handicap the fire fighters. Yet, even with the most

advanced gear, speed is still the vital element — those first crucial minutes.

In the event of a fire, three men set up fire boundaries while the other 30 take their positions and go into action. Within six minutes, the scene leader can tell the fire marshal if the fire is under control or if the ship should go to general quarters. SFC Charles L. Johann, the scene leader, considers the team "an unbelievable group of men . . . keeping *Kitty Hawk* fire-free and maintaining her operational status."



When the word is passed, "Fire, fire, fire, away the Special Fire Fighting team," men working at their daily jobs aboard *Kitty Hawk*, go to their fire-fighting stations.



Kitty Hawk (CVA-63)

Habitability — the concept of making life at sea as enjoyable and comfortable as possible — has become a key word aboard *Kitty Hawk*, as it has on many other carriers. The team of carpenters, welders, pipe fitters and electricians does not consider its job finished with rehabilitation. It also has a hot line for trouble calls and guarantees action in 24 hours.

On June 16, Commander J. V. Lockhart, former executive officer, relieved Commander R. D. Witthoft as commanding officer of VF-213. The squadron will return to Miramar after completing its fifth extended combat deployment to the Western Pacific.

VAQ-133, commanded by Commander H. F. Burrows, Jr., flew back to NAS Alameda early in July, ending an eight-month deployment aboard *Kitty Hawk*. The squadron flew over 2,300 hours and transferred over eight and one-half million pounds of aviation

fuel in air-to-air refueling over the South China Sea. VAQ-133, which has been flying A-3 *Skywarriors*, is transi-



As part of drug education, YNCS John Stemmerman, criminal investigator on USS *Kitty Hawk*, displays confiscated hashish pipe.

tioning to the new electronic warfare A-6 *Intruder* at NAS Whidbey Island.

YNCS John Stemmerman, criminal investigator for the legal department on board *Hawk*, spends about 90 percent of his time on a drug education program. The program is pursued in informal rap sessions, which sometimes go on for three or four hours. The Navy operates a school in San Diego which trains personnel to be drug abuse specialists. This school is Stemmerman's goal when he leaves *Kitty Hawk*.

Enterprise (CVAN-65)

Enterprise's 110,000th arrested landing was made by VA-196 Ltjgs. Clay Heil and Dave Papenhausen who landed an A-6A *Intruder* after returning from a night training mission off the coast of Hawaii. VA-196, home-ported at NAS Whidbey Island, Wash., is part of the *Enterprise-Carrier* Air Wing 14 team. CVAN-65 is on her fifth deployment to WestPac.

One man, out of more than 5,000 men aboard *Kennedy*, was tasked with the job of repairing more than 500 machines.

William Houston, an instrumentman striker, reported aboard last December as part of a new program within the rating. Before, when a typewriter couldn't be fixed by one of the men, it would sit useless until the ship pulled into port or a repairman came aboard.

The 20-year-old sailor hoped for a music career when he joined the Navy and chose instrumentman, he admits honestly, because he thought it had something to do with musical instruments. When he reported for 18 weeks of Class A school at Great Lakes, Ill., he found out differently.

Starting with one screwdriver, he built up a collection of tools and although trained to repair only manual typewriters, he also works on electric ones and adding machines, explaining that experience has been his best teacher.

In April, help arrived in the form of IMSA Paul Illcen who reported aboard. Now the odds are better . . . only 250 to one.

A Man and His Machines



PH3 John F. Moore

Letters

An Idea

Over the past year we all have enjoyed the recounting of the early days of Naval Aviation by Admiral Tate.

I am sure someone must be planning on this already — but, just in case, a suggestion:

Could the Admiral (or *NA News*) consolidate all of those outstanding articles and pictures for sale? Possibly our purchase could be in the form of a contribution to the Pensacola Museum. I know I would be a grateful \$10.00 donor just to have all that history in one volume.

A "thumbs-up" from "an old aviator" to an even older one.

Charles E. Ray, Capt.
USTDC J-3, Box 24
U.S. Taiwan Defense Command
APO San Francisco 96263

◀ We had hoped that the Tate articles would inspire other readers to set down their recollections — not only of the early days, but also of the in-between time. We are exploring the possibility of combining such articles in one publication.

Electra

I am currently researching the entire history of the Lockheed L-188 *Electra*, for an article to be published in the *Journal of the American Aviation Historical Society*. I would like to contact any Navy personnel who were associated with the acceptance tests for the P-3 series, or who have information concerning the uses of the *Electra* bailed from Lockheed for use at the Pacific Missile Range. Any bit of information is important, and I will be pleased to reply to anyone concerned with the *Electra*. Please contact me at the address below.

Jay L. Sherlock
4672 Flamingo Park Ct.
Fremont, Calif. 94538

Cruise Book

I would like to hear from anyone who may have a 1959 Med cruise book of USS *F. D. Roosevelt* (CVA-42). I'll buy it or trade for other carrier books you may need. I was a crew member and want it for personal use.

Joseph Luongo
23 Valley Rd.
White Plains, N.Y. 10604

Paycheck Not Delivered?

If your paycheck is not delivered to you on payday, you should immediately ask your disbursing officer for a replacement check. The Navy Comptroller in charge 199 to his manual established a new procedure to ensure that the individual Navy man is not penalized when the system doesn't get his check to him. It requires the disbursing officer to issue an immediate replacement. All you have to do is submit a signed statement to him that you have not received your check. This applies only when the system fails to deliver. If you lose your check after receipt, the Treasury Department requires that you still go through the regular, longer procedure for lost checks. — from BuPers

VC-8 Helicopter Crewman Rescues Three

ROOSEVELT ROADS, Puerto Rico — In June, a Grumman *Goose* making the Antilles Airboat 5:00 p.m. flight from St. Thomas, Virgin Islands, to Fajardo, Puerto Rico, crashed near the tiny island of Culebra, nearly midway between St. Thomas and Puerto Rico. A Coast Guard helo flying from San Juan, Puerto Rico, rescued six of the ten passengers aboard. Two were never to be rescued, and three survivors were left in the water in the vicinity of the wreckage.

A VC-8 helo in the area recovering BQM-34 drone targets forgot about *Firebees* for the moment and rescued the two remaining passengers and the pilot, George Hubschman.

Hubschman said that after both of the *Goose's* engines faltered, he unsuccessfully attempted to radio a Mayday to the St. Thomas Air Terminal.

Seeking to land parallel to the wave troughs in the six to eight foot swell-filled water, the craft skipped off one wave and slammed into another. The plane broke in half with the front half sinking almost immediately following Hubschman's escape. The after part of the craft remained afloat for several minutes with two persons clinging to it.

Hubschman said he ordered all passengers away from the plane but told

them to remain in the vicinity. The passengers had been instructed before the crash to don their life jackets.

Six of the nine passengers, either not hearing or choosing to ignore the pilot's instructions, headed downwind in hope of finding help. They were rescued by a Coast Guard helicopter. This left Hubschman with two other survivors, Jose Manuel Velasquez and Marlene Kaufman.

Velasquez remained afloat nearby with a life preserver while Hubschman and Kaufman supported each other on a scrap of wooden floor lining and a seat cushion.

Hubschman reported that fish nibbled at them and much blood was present in the water when they were signaled by the VC-8 helicopter, piloted by Ltjgs. William C. DeBrun and Steven B. Daunis.

AD2 Thomas Goodrow, following normal rescue procedures, leapt from the helo while it was hovering ten feet above the ocean. He noted several large objects below the survivors in the water and at first thought them to be bits of wreckage. He quickly realized the dark objects were circling sharks. He immediately asked who was injured, and Hubschman replied, "I've got two broken legs and the fish are eating me." He later added, "If it wasn't for that guy coming out of the helicopter, I wouldn't be here today."

Goodrow accompanied the injured pilot up in the hoist, operated by crew member ADR2 Jesse Starley, and then re-entered the water to aid the woman. With the woman in the helo, the hoist was lowered for the life-jacketed Velasquez, who was then hoisted to the helicopter.

During the return trip to Roosevelt Roads Naval Hospital, crew member Goodrow applied first aid to the three survivors. After discharging the passengers and shutting down the helo, Goodrow helped fuel, clean, and service his helicopter, then drove himself to the hospital for treatment of a laceration on his leg sustained during the rescue.

The Commander, Fleet Air Caribbean, Captain William A. Mackey, presented a Navy-Marine Corps Medal to PO Goodrow.

Mr. Miguel Nieves, President of the Eastern Puerto Rico Navy League, presented a plaque to both helicopter flight crews: VC-8 and the San Juan Coast Guard.



Commissioned April 20, 1967, Carrier Airborne Early Warning Squadron 116 is currently home-ported at NAS North Island, flying the E-2B. The Hawkeye, from its airborne combat information center provides the big picture so necessary for successful force defense, search and rescue, communication relays, long-range strike operations and flight monitoring. The aircraft is manned by a pilot, copilot, combat information center officer, air control officer and an enlisted flight technician. Led by Cdr. J. G. McIntyre, VAW-116 is scheduled to deploy this fall.







NAVAL AVIATION

NEWS