

NAVAL AVIATION

NEWS

*National Air and
Space Museum*

SEA-AIR OPERATIONS GALLERY

*Evolution
of an
Exhibit*

SEPTEMBER 1976



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NAVAL AVIATION NEWS

FIFTY-EIGHTH YEAR OF PUBLICATION

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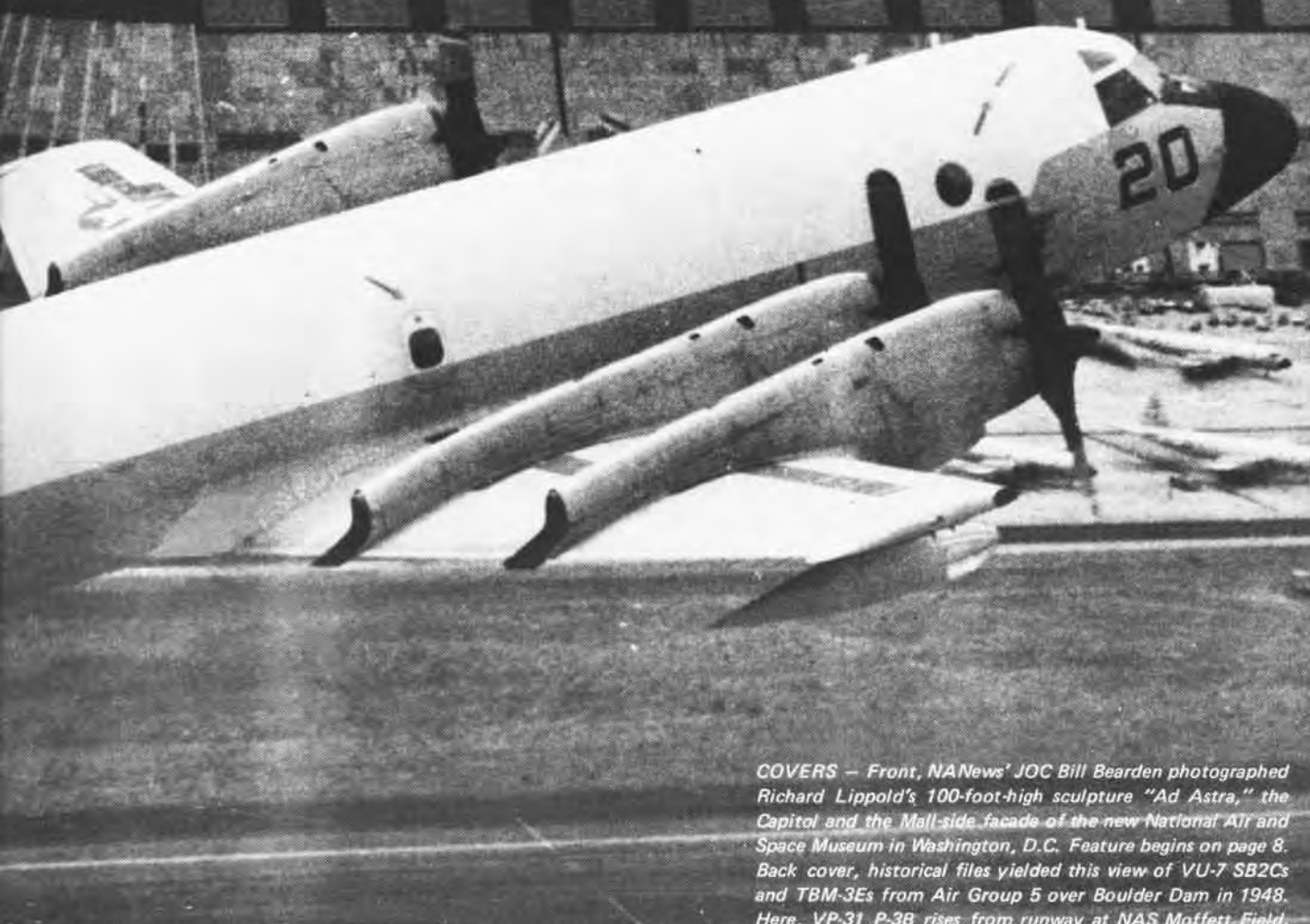
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COVERS — Front, NANews' JOC Bill Bearden photographed Richard Lippold's 100-foot-high sculpture "Ad Astra," the Capitol and the Mall-side facade of the new National Air and Space Museum in Washington, D.C. Feature begins on page 8. Back cover, historical files yielded this view of VU-7 SB2Cs and TBM-3Es from Air Group 5 over Boulder Dam in 1948. Here, VP-31 P-3B rises from runway at NAS Moffett Field.

Kudos

The pilots of the Ferry Command consider the May 1976 anniversary issue of *NA News* to be the finest to date. From cover to cover it was superb. Jack Fellowes' article and "Silhouettes" that followed made us puff our chests out a little further and realize perhaps Naval Aviators are a special breed of cat.

There are very few airplanes that this squadron doesn't fly and there always seems to be something for everyone in your publication. Keep up the fine work.

Charles Larzelare, Cdr.
C.O., VRF-31

AIMD

Your article, "The New Calibration System" in the February issue was read with great interest by AIMD, NAS Norfolk. Although the article was correct as far as it went, no mention was made that AIMD Norfolk is the prototype for East Coast intermediate maintenance activities. The metrology automated system for uniform recall and reporting (MEASURE), now being developed and implemented, identifies all aircraft precision measuring equipment for calibration, not just those units calibrated at NARF. We repair and calibrate over 10,000 type-IV units annually. Our large-scale PME production and close proximity to NARF Norfolk and NavAirSysComRepLant led to our selection for the East Coast development and implementation of the prototype on-line computer for MEASURE. Over this computer line, updated meter card information is transmitted directly to RepLant. In practice, AIMDs play a significant role in the management and calibration of precision measuring equipment. AIMD and NARF Norfolk are partners in assisting RepLant in the development of a viable management system which will improve the reliability of the calibration program.

Don R. Eaton, Cdr.
AIMD Officer
NAS Norfolk, Va.

Help Needed

I am researching the history of WW II military aviation in Iceland and need information on U.S. Naval Aviation activity. Research is difficult from here and so I am asking that you publish a short account of my project.

During the period covered, VPs 73, 74, 84 and VPB-128 were based in Iceland at different times. Collectively, they scored eight successes against German U-boats. U-464 was destroyed by a VP-73 aircraft August 20, 1942; U-408 by Lt. R. C. Millard of VP-84 on November 11, 1942; U-611 by Lt. L. L. Davis, VP-84, December 10, 1942; U-657 by Lt. E. T. Allen, VP-84 on May 14, 1943; U-467 by Lt. R. C. Millard, VP-84, May 25, 1943; U-388 by Lt. E. W. Wood, VP-84, June 6, 1943; U-200 by Lt. J. W. Beach, VP-84, June 24, 1943; U-336 by Cdr. Westhofen, VPB-128, October 4, 1943.

I would greatly appreciate hearing from anyone able to furnish further details about the sinkings, or who served with the above units in Iceland.

Ragnar J. Ragnarsson
Skeidarvogli 137
Reykjavik, Iceland

New Orleans

The article about NAS New Orleans in the February issue gave me a byline which I appreciate, but I would like to acknowledge the valuable assistance of an ardent Naval Aviation history buff, Mr. Joe H. Weathers, Jr., of New Orleans. He provided many historical facts and most of the photographs.

Mr. Weathers is always anxious to communicate with anyone who shares his interest. He can be reached through the public affairs office at NAS New Orleans.

A. G. Ildas, LCdr., USNR
NARTD
NAS Miramar
San Diego, Calif. 92145

Flying Recips

For a few of us who are still flying

recips, it might be beneficial to note that recip drivers are more than likely used to performance based on 115/145 avgas. However, with the switchover to 100/130 avgas by many bases, it is imperative that pilots constantly adhere to the performance data section of the applicable Natops flight manual. Cold days and lower octane fuel can lead to premature engine failure by overboosting. This situation is particularly noteworthy in today's jet-jockey age where the once intrepid aviator is assigned to a proficiency billet flying T-28s or S-2s.

E. A. Homer, Maj., USMC
Nuclear Weapons Training
Group, Atlantic
Norfolk, Va. 23511

Hang Me From . . .

About the back cover of your March issue—we East Coast *Intruders* like low passes over the boat as much as anybody, but not with hung ordnance! Even for a high visibility mission like an air show, safety can't be compromised. Nuff said!

Bill Dubois, Lt.
(former VA-65 Natops officer)
NROTC Unit
University of Florida
Gainesville, Fla. 32611

Ed's Note: Grampaw Pettibone struck us with numerous lightning bolts for that one.

P-2s

VP-94 is a finalist in the contest to be the last Navy squadron with P-2s. As this noble bird is gradually (and slowly) phased out, we would like to compile a complete history of the P-2's service in the Armed Forces.

We would appreciate your sending any interesting article, story or photograph of the P-2 to this command. We will protect and return all material.

D. M. Williams, LCdr., USNR
Officer in Charge, VP-94
NAS New Orleans, La. 70146

Reunion

Intrepid reunion will be held October 9-10 in Philadelphia, Pa. For information, contact Commandant 4th Naval District, Philadelphia Naval Base, Philadelphia, Pa. 19112, Attn: JOC Liedtke. Telephone: 433-3271 or 755-3271.

did you know?

F-14 Training Squadron

Oceana's VF-101 has become the Atlantic Fleet replacement squadron for the F-14 *Tomcat*. The squadron is charged with training pilots, NFOs and enlisted maintenance personnel in the operation and employment of the *Tomcat* prior to assignment to fleet F-14 squadrons. At the same time,



VF-101 will continue its mission of providing similar training in support of F-4 *Phantom* squadrons. Previously F-14 instruction was accomplished at NAS Miramar, Calif. However, as Oceana squadrons transitioned from F-4s to F-14s, it was decided to establish *Tomcat* training at Oceana to improve Atlantic Fleet readiness and save time and money.

Over 250 officers and enlisted personnel have been assigned to support the VF-101 component, which became fully operational in June when VFs 41 and 84 began transition training.

The *Tomcat* is the eighth major aircraft type assigned to the *Grim Reapers* since their commissioning in 1942. Previous fighters include F4F *Wildcats*, F6F *Hellcats*, F4U *Corsairs*, F2H *Banshees*, F4D *Skyrays*, F3H *Demons* and F-4 *Phantom IIs*. VF-101, led by Commander Jack McHugh, also maintains an air combat tactics training detachment at Key West.

Mobile Land Target

Any second generation item that costs less and yet has advantages over the first generation item is a rarity. Yet, this is true of the mobile land targets (MLTs) now being tested at five Navy ranges under the direction of the Naval Air Systems Command and the Targets and Range Division at Point Mugu.

The principal mobile land target used for the past 12 years for air-to-ground practice was the QM-56, a tank-like configuration weighing 16,000 gross pounds and getting less than three miles per gallon of gas. Maintenance and repair facilities were scarce. Another target with advanced parameters, QM-41, was considered for several years. But the program was cancelled because the QM-41 cost more and logistics problems were increased. The Point Mugu unit was tasked to search for an MLT that would have a lower initial and maintenance cost, be more easily supported, have higher speed and save fuel. Charles White, surface targets project manager, researched and found the answer in a test vehicle developed several years ago by Naval Weapons Center, China Lake.

The vehicle, now under test, is a standard four-wheel, rear-engine, modified VW frame, with a top speed of 60 mph. It is built by Chenoweth Corporation, El Cajon, Calif. Gas consumption is about 1/10th that of the QM-56 and 41. Off-the-shelf parts and common automotive tools are used for maintenance and repair. The rear tires are standard but vary from range to range depending on terrain conditions. Tests have shown sur-

did you know?

prising results. On the five different Navy ranges, the radio-controlled vehicle has bumped over rocks, gullies and sandy terrain with a total on-station time of over 100 hours. It experienced only the normal problems associated with new vehicles. The steel tubing that gives the vehicle its strength was developed by Chenoweth for use in the Baja California races, a grueling contest over desert terrain. A fully-equipped QM-56 cost about \$105,000; the new configuration costs \$3,700, plus the cost of drone control equipment. A rigid mast houses beacon lights and the remote control antenna. It also provides a radar reflector signal to Navy planes simulating low-altitude missions. Plywood silhouettes can be attached to the drone. Pilots state that it can be clearly seen during bombing runs and presents a realistic and challenging target. Range demonstration tests will be followed by continued evaluation through June 1977.

US-3A Transport

A cargo and passenger transport derivative of the S-3A *Viking* has been flight tested at Lockheed-California Company's Burbank facility. Designated the US-3A, the new aircraft is designed to resupply aircraft carriers at sea. It carries a crew of two plus six passengers and 4,600 pounds of cargo, or an all-cargo load of 7,500 pounds. A pod with a cargo capacity of 1,000 pounds is mounted under each wing. Maximum range is over 2,900 nautical miles. Maximum gross takeoff weight ranges from 42,800 pounds with internal fuel to 47,100 pounds with auxiliary fuel tanks. The



aircraft was modified from an S-3A research and development vehicle to the pre-production prototype under a Navy contract.

Following the flight tests, the prototype was turned over to the Navy for preliminary evaluation and carrier suitability tests prior to BIS trials in October.

CH-46E Sea Knights

Under a contract with Boeing, 272 *Sea Knights* will be fitted with T58-GE-16 engines, an Omega Doppler navigation system, new crashworthy pilot and copilot seats, a combat crashworthy fuel system, a new rescue hoist and an infrared suppressor for engine exhaust. These modifications and separate but concurrent fiberglass blade installation will extend the life of the Navy Marine Corps CH-46 into the 1990s.

Following acceptance flights at Boeing Vertol's flight test facility at Wilmington, Del., in July, two prototype CH-46Es were delivered to NATC Patuxent River for BIS trials. The trials and the operational evaluation to



follow will be the final steps in qualifying the new *Sea Knights* for service use. The Navy has already placed orders for ten modification kits and expects to order more before the end of the year.

Environmental Quality

The Naval Air Test Center, Patuxent River has been selected as the recipient of the Secretary of Defense Environmental Quality Award. The award recognizes the military installation which conducted the most outstanding environmental programs during 1975. An advisory committee of nationally known environmentalists commended NATC for overall performance and initiative in complying with environmental protection mandates and particularly for efforts to enhance overall environmental quality.

Approximately two-thirds of Patuxent River's more than 6,000 acres are directly involved in a comprehensive approach to protection and improvement of the total environment. "The degree of concern at NATC and NAS for environmental quality goes far beyond regulations of the Environmental Protection Agency for controlling air and water pollution, solid waste disposal, the use of pesticides and the creation of noise," says environmental protection officer Captain George Lake.

The advisory committee also recommended that Camp Lejeune, N.C., Fort Carson, Colo., and Kirtland Air Force Base, N.M., be recognized for carrying out environmental responsibilities.

Acoustic Test Facility

A basic requirement of any test and evaluation program is controlled environment, but how do you control the ocean? To accurately test and evaluate antisubmarine acoustic devices, engineers must be sure they have a knowledge of anything in the ocean which will affect their equipment. Scientists and engineers at the Naval Air Test Center, Patuxent River have found the solution by electronic simulation techniques in an acoustic test facility (ATF).

"With the ATF we no longer need an aircraft to drop sonobuoys," explains project engineer Walter Kahle. "Even if the airplane is flying over the Blue Ridge mountains, we can make its ASW gear think it is flying over some sonobuoys it just dropped in a designated operational area. The aircraft will receive acoustic signals from a predetermined target generated here in the ATF. Since we know what the target is doing, we can accurately measure the performance of the acoustic devices. We can also repeat the precise test conditions. This was impossible before."

The ATF will give NATC the means to perform controlled tests in order to evaluate acoustic and related systems now in use or planned for the near future. To satisfy operational requirements for airborne antisubmarine warfare systems, the capability of the acoustic sensor processing systems is being significantly increased: in the number of channels, in the sophistication of the processing, and in the quantity of data to be handled. The ATF will have two major roles, laboratory test and flight test support. In its first role, it will test acoustic sensor system elements to verify performance and compliance with specified performance requirements. In its flight test support role, it will make comparative evaluations of flight and laboratory processed data. It will also enable the reduction and correlation of inflight or test range data.



grampaw pettibone

Tricky Stuff

As an AF-1E (FJ-4B) pilot took off on a VFR night cross-country flight, the weather at his destination, which was also home base, was clear with three miles visibility in smoke and haze. En route, he received current weather broadcasts and found no change at all. Not a cloud in the sky, just some smoke and haze to cut down the visibility a bit.

He started a gentle letdown about 20 miles out and soon had the lighted field in sight. Orbiting overhead at 2,500 feet, he could plainly see the entire airfield and the neighboring areas but was informed by the tower that the field was IFR with one-half-mile visibility and that he would have to contact approach control for a GCA landing.

Proceeding to a radio beacon some eight miles from the field and orbiting there, he had no success in contacting approach control and finally got a clearance using the control tower as a relay. All this time he had the airfield in sight. It didn't seem possible the field had only one-half mile visibility. It was a real puzzler.

After being assigned a GCA frequency, he made contact immediately and was given a vector for a dogleg approach to the runway. GCA cleared him down to 1,000 feet, had him dirty up for landing and informed him the arresting gear was not rigged for this runway. The wind was calm, and visibility was now one-fourth mile and deteriorating rapidly. The pilot rogered, said he had the field in sight and shortly after this touched down right on the centerline, but just a little fast and about 500 feet past the normal GCA touchdown point. He had about 5,500 feet of runway remaining for the rollout.

The pilot had the sensation of being in a ball of cotton. Only the runway lights to either side of him were dimly visible. Visibility ahead was absolutely zero! He braked as hard as he felt he



Grampaw Pettibone says:

Sufferin' catfish! There's *nothing* more treacherous than ground fog, for it usually suckers you in with an apparently good view of the runway and surrounding area and then smothers you in a white blanket right at flare or touchdown points. And, that landing rollout can be sheer horror, kinda like fallin' into quicksand!

Once you touch down and that old fuel state forbids any further excursions into the blue, you've pretty well had it. The only solution is to go to an alternate *before* trying a letdown and while fuel permits. When temperature and dewpoint are hangin' close together and the wind is calm, you can expect ground fog, especially in coastal areas, and plan accordingly. There's more to a weather broadcast than just ceiling and vis. (March 1963)

On Saving a Phantom

The pilot and his radar intercept officer (RIO) were scheduled for a two-plane air intercept training flight in a *Phantom*. The pilot had considerable F-4 experience and enjoyed a good reputation in his community. The flight was thoroughly briefed in accordance with current directives. The first portion of it was normal in all respects.

The F-4 proceeded to an offshore operating area at 24,000 feet as the "fighter" aircraft while another *Phantom* was positioned to act as bogie at 21,000 feet. The fighter turned to a heading of 360 and descended to 15,000 feet. The bogie heading was 180 and the fighter began a shallow climbing right turn to bogie heading; power was smoothly applied toward 100 percent.

As the fighter *Phantom* was climbing through 18,000 feet at 360 knots, both engines accelerating, a loud explosion occurred. This was followed by an immediate and abrupt yaw of the aircraft to the left. The plane began to vibrate violently and the left engine

could do safely for what seemed an endless time. Suddenly the threshold lights on the bitter end loomed up close ahead! Shutting the engine down, he jammed both feet hard on the brakes, heard the right tire blow and then hurtled off the end into the shallow waters of the bay which virtually surrounds the airfield. He had about 50 knots when he hit the water and went some distance out before stopping.

His radio was still running, for he heard GCA calling him, so he answered up, saying he was in the water, not injured, but to come quickly.

The first man on the scene was the pilot's GCA final controller who illuminated the wreck with his truck's headlights, then waded out and assisted him into shore.



fire warning light illuminated. The pilot retarded the left throttle to idle.

At this time, the left engine overheat light came on. The pilot shut down the left engine by placing the throttle to off and securing the left engine master switch. The right engine fire warning light illuminated and the right throttle was retarded to idle. Both fire warning lights remained on and the aircraft continued to vibrate violently.

Shortly thereafter, the wingman (the bogie) joined up and observed white and brown smoke streaming out of the left engine area. Subsequently, small particle debris was noted coming from that engine.

As the aircraft was turned toward home base, the right engine was advanced from idle. (The fire warning light was still on but no secondary indications existed.) The wingman observed no evidence of smoke or fire, so the pilot continued to home base at 13,000 feet and extended the ram air turbine.

Vibrations continued and the wingman observed the left wing tip vibrating rapidly. The emergency checklist was completed and the bleed air switch was turned off as an added precaution. With the left engine shut down, the PC-1 hydraulic system was observed to be at 2,000 psi and decreasing. At this time, both aux-air-door lights and the speed-brake-out light were illuminated. Pneumatic pressure was noted to be holding at 200 psi.

The pilot had elected to make a straight-in approach. He descended to 8,000 feet and dumped fuel to reduce to the single-engine landing weight. An attempt was made to extend the gear by lowering the gear handle as utility pressure was noted at 1,500 psi. Only the right main gear extended as observed by the wingman and all three cockpit indicators showed bar-

ber poles. The gear was then extended pneumatically and all three wheels indicated down and locked.

The pilot then elected to orbit clear of the field in order to complete fuel dumping and to perform a controllability check. At 7,000 feet, the minimum control speed was 210 knots with 6,000 pounds of fuel indicated. As fuel dumping continued, a low fuel light came on with 4,000 pounds indicated. Fuel dump was secured.

The pilot decided to commence an approach. He made a straight-in landing at home field with a flared touchdown speed of 220 knots after passing the short-field arresting gear. The drag chute was deployed and the arresting hook was lowered prior to engaging the long-field arresting gear. After the aircraft stopped, the right engine was secured and the aircraft was towed to the line. It sustained substantial damage due to the explosion and fire. Both fire warning lights remained illuminated and aircraft vibration continued until touchdown.



Grampaw Pettibone says:

Hallelujah! This one goes to show ya that there's no substitute for the safety device between your ears.

This lad did a commendable job and got great assistance from his backseater and his wingie. What else can I say but Well Done!

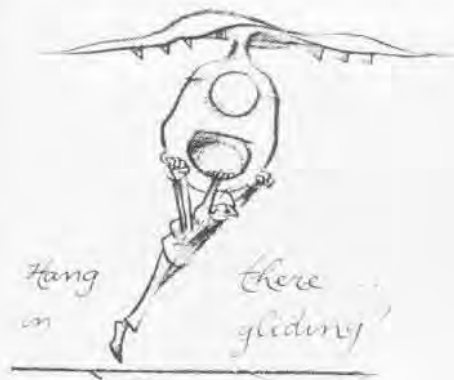
Cool, Calm, Collected

En route to the home field after a four-plane A-7 tactics flight, the No. 2 man was rendezvousing with his wingmen. His throttle stuck at 99 percent with 2,500 pounds of fuel remaining. He declared an emergency and the flight split up with the pilot assuming the lead of his section and proceeding

toward the base. His wingman observed fuel streaming from the tailpipe and quickly told him about it. At 29 miles out, the pilot initiated a climb from 14M in order to slow to gear extension speed. At 220 knots, he blew down the wheels, lowered the flaps and placed the gear handle in the up position to allow use of the speed brake for speed control. The speed brake would only extend five degrees and his wingman now reported hydraulic fluid on the belly of the aircraft.

At 11 miles and 2,500 feet with 1,400 pounds of fuel remaining, the pilot initiated a 360-degree turn in order to remain below 240 knots while descending. At this time, fuel loss increased rapidly. He completed the turn with only 600 pounds remaining.

At 240 knots, one and one-half miles from the end of the runway, he secured the engine with the fuel master



switch. Only 150-200 pounds of fuel remained. He then executed a flawless landing, rolling into the arresting gear at 10-20 knots with a final fuel indication of 150 pounds.



Grampaw Pettibone says:

Great balls of professionalism! What a pro! Talk about being cool. This lad stayed cool all the way and carried out an extremely difficult task as if he did it everyday.

Sure does my heart good to hear about "jobs" like this one after some of the episodes I hear about!

Well Done to Ltjg. Mike Anderson of VA-82!

National Air and Space Museum

SEA-AIR OPERATIONS GALLERY

How do you fit a 126-foot, four-engine seaplane into a 115x120-foot hall? You don't. O.K. Then how about an aircraft carrier? Hey, that's a terrific idea . . . !

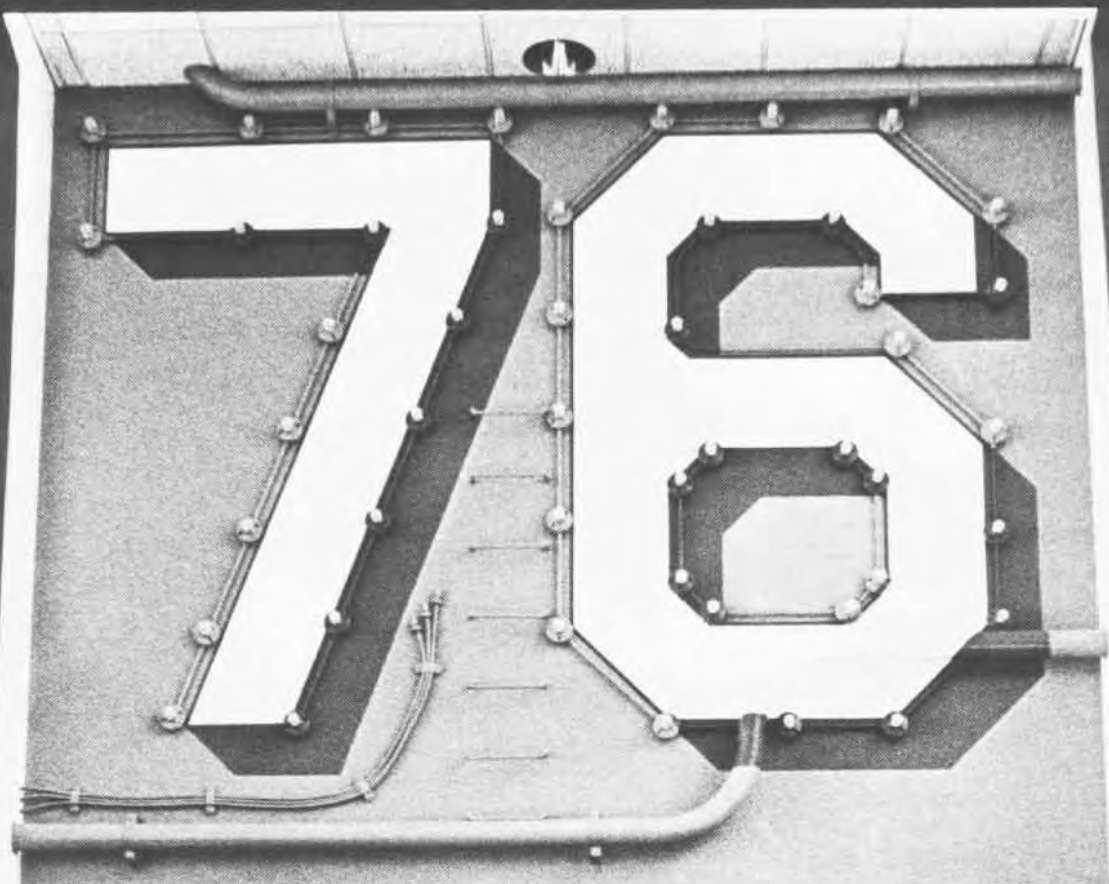


**By Captain Ted Wilbur
Project Coordinator**

*Photographs by the author
and JOC Bill Bearden*

On June 21, 1972, our thoughts were on the disposition of the NC-4. Following the restoration of the mammoth 1919 flying boat by the Smithsonian Institution in 1969, serious consideration was applied to its permanent exhibition. The most likely place was the proposed National Air and Space Museum to be built on the Mall in Washington, D.C. Advanced at that time was a plan for an \$80 million structure, an edifice ideally suited for the priceless U.S. Navy remnant of the first flight across the Atlantic (*NANews*, June 1969).

When appropriations for the new Smithsonian building were deferred by Congress until expenditures for the Vietnam conflict had shown a substantial reduction, a less imposing design was selected. The reconfigured, smaller museum was approved for \$40 million, but at the sacrifice of an exhibit bay large enough for the Navy-Curtiss memorial.



Gallery 203

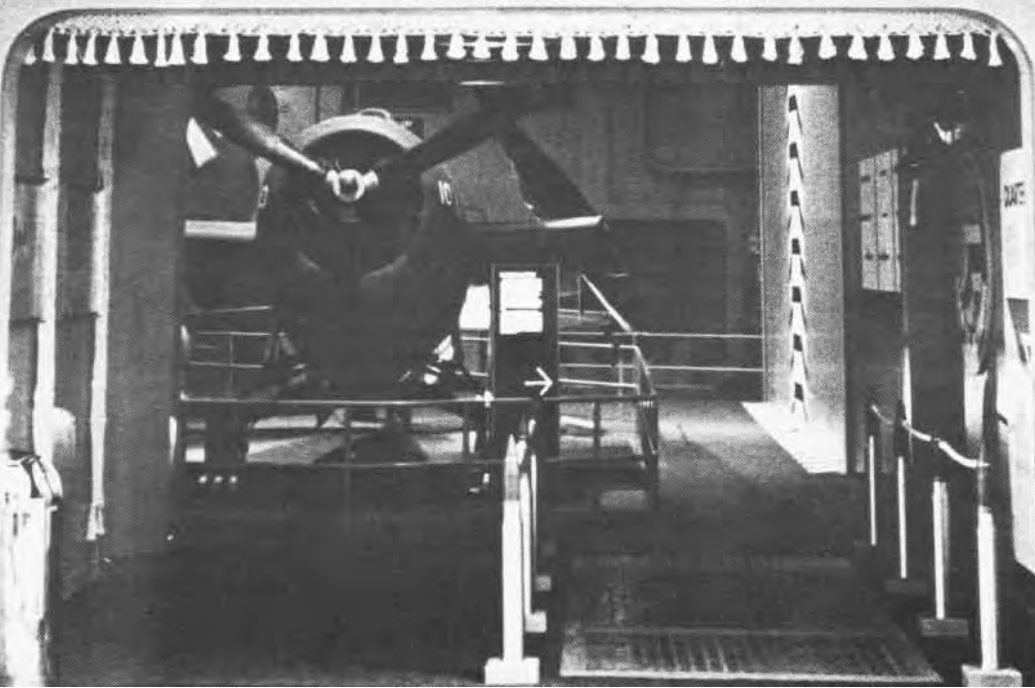
Sea-Air Operations

Opérations air-mer

Operaciones Aéreo-Marinas

Wasserflugwesen

海上航空



SEA-AIR OPERATIONS GALLERY



Advisory Board was representing Naval Aviation, along with the Naval Air Systems Command historian, Lee Pearson. Louis Casey, NASM Assistant Director, was there, too. Casey, working with the venerable NASM historian, Paul Garber, had been a key figure in the refurbishment of the NC-4.

Revealed to our wondering eyes was a steel, glass and marble structure about three blocks long and 85 feet high, with underground parking for 550 cars. Total exhibition space was 190,000 square feet, in addition to a spacearium, theater, library and cafeteria. The appearance was that of four massive marble hangars, joined together by large, glass-enclosed, tubular-trussed bays. The architect had set out to create the first truly contemporary design for the Mall area. The glittering transparent bays, sheathed in double-glazed glass panels and domed acrylic skylights would provide

We were sitting in the conference room of the Smithsonian's old Arts and Industries Building. An air conditioner growled smugly in the dusty window. Beyond the doors, sweltering tourists jostled about beneath dormant artifacts of aviation's past and present. Daily they would crush around in marveling perusal of space flight gems and aeronautic genius—*Apollo* and *Mercury* capsules, the *Wright Flyer*, X-15, Douglas *World Cruiser*, Fokker D-VII, ad infinitum. Thus engrossed, they would invariably miss the quiet, white-haired man who on rare occasions would stand off to the side gazing thoughtfully up at his Ryan monoplane. For all the throng, Charles Lindbergh and the *Spirit of St. Louis* were still alone on Earth.

Melvin Zisfein, Deputy Director of the National Air and Space Museum (NASM), showed us the new plan. Retired Vice Admiral William Schoech, former member of NASM's





Photos by Bill Bearden

naturally-lighted spaces relating the inside exhibits to the outside environment, the sky. The museum, scheduled to open to the public at the height of the Bicentennial in July 1976, would be geared to handle 8,000 people at a time, 50,000 in a day and, expectantly, well over 7 million in a year. It had air conditioning.

According to Public Law 89-509, the Museum would "memorialize the national development of aviation and space flight; collect, preserve and display aeronautical space flight equipment and data pertaining to the development of aviation and space flight, and provide educational material for historical study. . . ."

The planning philosophy was that the museum should be educational as well as inspirational; it should point to the future while memorializing the past; it should explain to the general public where we have been, where we are and where we

are going; and it should be *dynamic*.

Experience in aviation exhibition both in the Arts and Industries Building and the nearby Quonset hut on Independence Avenue, which served in recent years as the temporary Air and Space Museum, indicated that visitors fell into several categories. There were children, high and prep school, and college students, casual adults, technical and expert adults, historians, writers, artists and economists both government and congressional.

Therefore, the Museum had to be laid out so the individual who had only an hour could follow a logical pattern and get an overall picture chronologically. The subject matter had to be palatable and not too difficult to assimilate. At the same time it would provide the person of specialized interests with "whirlpools" along the stream of history.

To this end, 26 exhibit halls were envisioned, each chronicling a sub-

jective segment of the saga of air power. The categories included such elements as Air Transportation, General Aviation, Milestones of Flight, Vertical Flight, Experimental Aircraft, Balloons and Airships, Flight Technology, Rocketry and Space Flight, and Satellites.

Resolution of the fate of the NC-4 was bittersweet. Angling the entire plane into one of the bays was not only considered poor exhibitry practice, but it would also prevent display of too many smaller machines. Removal of the outer wing panels on either or both sides was unthinkable, defeating the purpose of public display. Hence, no NC-4 in NASM.

Instead, it was decided that the forthcoming Naval Aviation Museum at Pensacola would be a far more suitable repository. There the complete giant could be erected, and at a level low enough for intimate scrutiny.

SEA-AIR OPERATIONS GALLERY

M



Melvin Zisfein

A certain amount of cross interest was apparent on the question of military history and weaponry. In answer to provincial queries about an "Air Force Hall" or "Army Aviation," the NASM planning board conceded interest in military applications of aircraft and spacecraft but not as the museum's primary objective. "Certain specimens of military origin will be on display, but for the full story of military usage, the visitor should be referred to other museums such as the Air Force Museum at Dayton or the Naval Aviation Museum at Pensacola. NASM cooperates with both these organizations, but the story of aerospace development we have to tell is fundamentally different."

To some this view might have seemed oblique. The NC-4 alone is one of the nation's most valuable aviation artifacts. And with it leaving the scene, what would happen to the rest of 65 years of Naval Aviation? Melvin Zisfein provided an answer:

"Hall No. 203, situated in the west end, second level of the building, is tentatively assigned the title of Sea-Air Operations. This is a broad term encompassing all flight operations from water surfaces and over large bodies of water. Sea-air operations started with Henri Fabre's first hydroplane flight in 1910. Since that time there have been many and

diverse developments including flying boat operations, both military and commercial, Schneider Cup racers, lighter-than-air blimps and rigid airships, overwater operations by land planes, helicopter operations and, possibly the most important, aircraft carrier operations."

The Sea-Air Operations Hall was roughly 65x70x25 feet. Barely enough room for an F-14. Well, from the NASM collection of more than 200 aircraft, how about the F-5L hull? Dubious interest. Except maybe to WW I buffs. Numerous other sea-air machines were in storage but our discussion moved more toward "something unique," a treatment that would tell an unexpected story to the visitor. Of course, the carrier emerged as the most exciting focal point.

To try to create for the casual tourist an operating aircraft carrier in a windowless cube in the middle of Washington is a fairly enterpris-

NASM artist Albert Lane prepared first rendering of Sea-Air Hall. At right, part of early model by George Hoover.



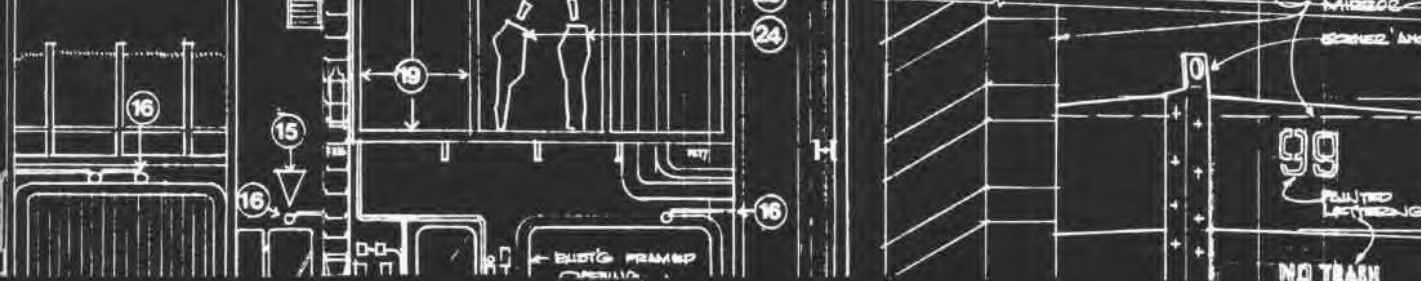
ing pursuit. A flexible imagination can be valuable. We considered paving the hall with teak planks to resemble one of the earlier flight decks, painting the walls to look like sky surrounding an island superstructure in perspective, with maybe a landing signal officer (mannikin) waving off a suspended WW II *Dauntless* or *Corsair*. Too static. Too much wasted space. Perhaps part of a real island could be installed. With a CIC room. Sound effects. A vibrating deck. Night operations, noise, lights, wind. A storm at sea, things that go bump in the dark. Salt water spray and galley smells. A unique whirlpool of history for our wandering visitor!

The basic concept was intriguing, the cost prohibitive. To successfully



simulate reality would entail sophistications beyond the limited budget. Two years would pass before the idea was seriously reconsidered.

In June 1974 Vice Admiral William D. Houser was Deputy Chief of Naval Operations (Air Warfare). As the acting Navy member of the NASM Advisory Board he suggested means of bringing the carrier exhibit to fruition. Reasoning that authenticity was a key to a convincing display, he proposed the utilization of Naval Aviation/carrier expertise from reserves and retirees. Further, it was likely that a number of actual ship artifacts might be available for the exhibition on a long-term loan basis. Several



obsolete carriers destined for the salvor's torch contained a wealth of items useful to our purpose. Museum Director Michael Collins, while readily accepting the admiral's offer of help, also observed there were exactly two years to complete the project, an endeavor for which no firm plan as yet existed.

A number of things had to happen, and quickly. Most importantly, a well defined concept was needed along with the wherewithal to carry it out. Since neither money nor manpower was available, assistance would have to come from friends.

Foremost friend-maker, retired Vice Admiral William I. Martin, chaired the small committee for liaison with NASM. From a background of impeccable Naval Air credentials, VAdm. Martin saw the problem as one of communication and education. On one hand the right people had to be apprised of the opportunity and, on the other, guidance had to be provided to those who would perform the work. Virtually no one on the NASM design staff

had any kind of carrier experience.

USS *America* filled the gap. Once a bout of round-the-clock operations off the Atlantic Coast was viewed by NASM personnel, the concept was clarified. Through approximation of the sound and sight cues witnessed on *America*, the visitor to the museum exhibit could experience that same feeling of being on an operating carrier at sea.

Credibility was dependent upon talent in simulation. We needed a master of ersatz. Fortunately, retired Commander George Hoover (NA-News, December 1971) arrived on the scene. A consultant to Systems Associates, Inc., Hoover examined the problem, drafted an approach based on his lengthy experience in special devices and constructed a model of the hall as he envisioned the solution.

The original elements remain today although the early format required adjustments. The first concept embodied two complete levels with an aircraft elevator opening up to a projected "sky" above.

Engineering problems led to an alternative: one hangar bay and part of an island structure built out of a wall.



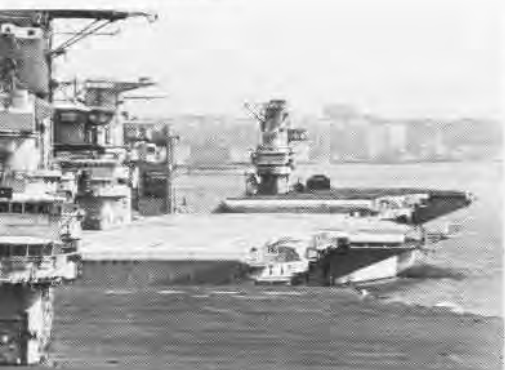
Aviation artist R. G. Smith and his SOC-3 painting, one of four Navy scenes in the museum donated by MPB Corporation.



Lucius Lomax, NASM gallery designer



SEA-AIR OPERATIONS GALLERY



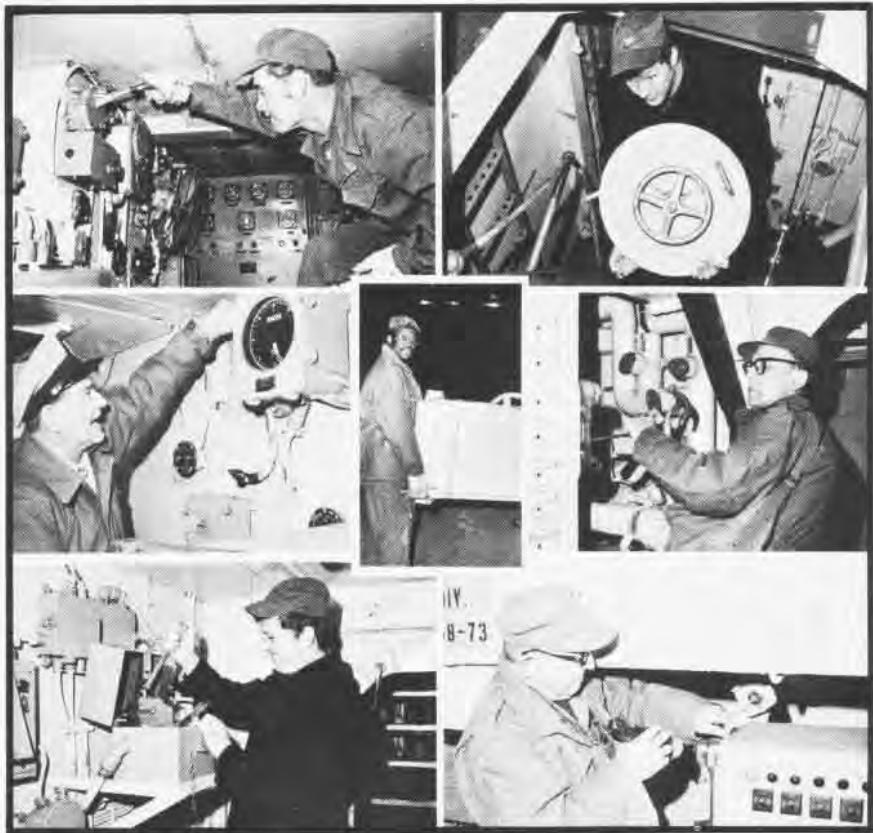
Seabees, working on their own time away from civilian jobs, applied wrenches and discreet torches to *Essex*, *Randolph*, *Shangri La* and *Intrepid* in Bayonne and Philadelphia. On the West Coast, George Hoover added "cannibal" to his track record, barely catching *Hancock* before she was towed to oblivion.

Effective re-creations are not always what they seem. The removal

of tons of steel bulkheads, for instance, isn't necessary when only the *apparent* realism is sufficient. Movie sets have proved that for years. Therefore, Universal Studios generously agreed to tailor their sound stage constructions for the sound stage constructions for the *Midway* motion picture to NASM specifications. (It was fortuitous that a number of people involved with the making of the movie were former Navy personnel.)

In order to present a variety of aircraft the ship design would be flexible—a "carrier for all times." As in the early days of CVs, two airplanes could be suspended from the bay's overhead, doubling the capacity. Bridge and pre-fly modules were window dressing for views of fore and aft flight deck activity, while a ready room was conceived as a theater revealing dynamic cockpit views to the visitor. (At one point the ready room idea became such a climactic, elaborate "crash course" in tailhook aviation that we thought of visitors more as "survivors," graduates who would even earn souvenir wings before leaving. The dictates of crowd flow — and the lack of space for a sick bay — made this fascinating notion impractical.)

A NASM contract was let with Walter Dorwin Teague Associates, Inc. of New York for the final design of the "USS *Smithsonian*, CVM-76,"* to be home-ported in Washington, D.C. Elsewhere, a name more apropos was "USS *Cumshaw*" as five carriers scheduled to be scrapped were scavenged for the flavoring in our stew. Reserve



Above, mid-winter scavenging operations aboard Intrepid in Bayonne. At right, one of Universal's sets for "Midway" before shipment to Smithsonian. The artifacts in the movie, and the exhibit, are real.



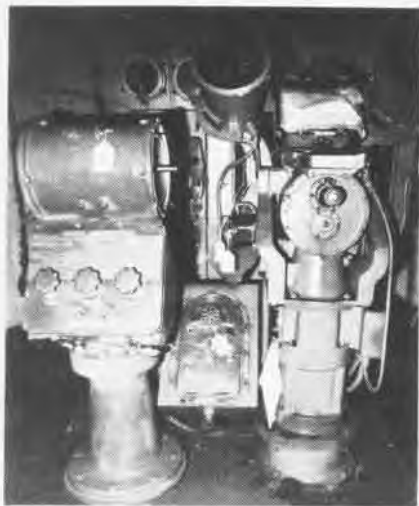
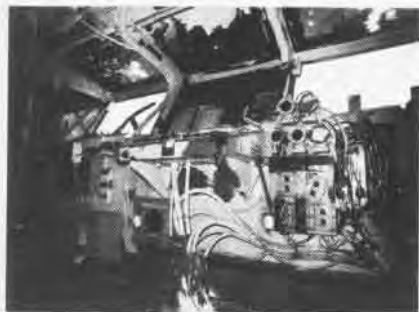
* "M" for Museum

Part of our growing collection of real carrier artifacts was used to "flesh out" the plywood and glass panels during the filming of *Midway* and later the "battle-scarred" material was refinished and shipped east to the Smithsonian project. We were amazed to see wood coated with shellac-laced enamel looking exactly like heavily painted steel. Seams were filled with molded plastic that was a dead ringer for

welding. We learned, too, more about "plates"—or back-projections—that can establish any desired scene as a background to the live action. Addition of sound completes the illusion.

(Universal's innovative "Sensurround" was also offered but the system's penetration characteristics would have been disconcerting in adjacent halls of the museum. The aim was to educate, not punish.)

Below, an example of the restoration excellence performed by NASM personnel, as compared to the initial condition.



SEA-AIR OPERATIONS GALLERY



George Hoover

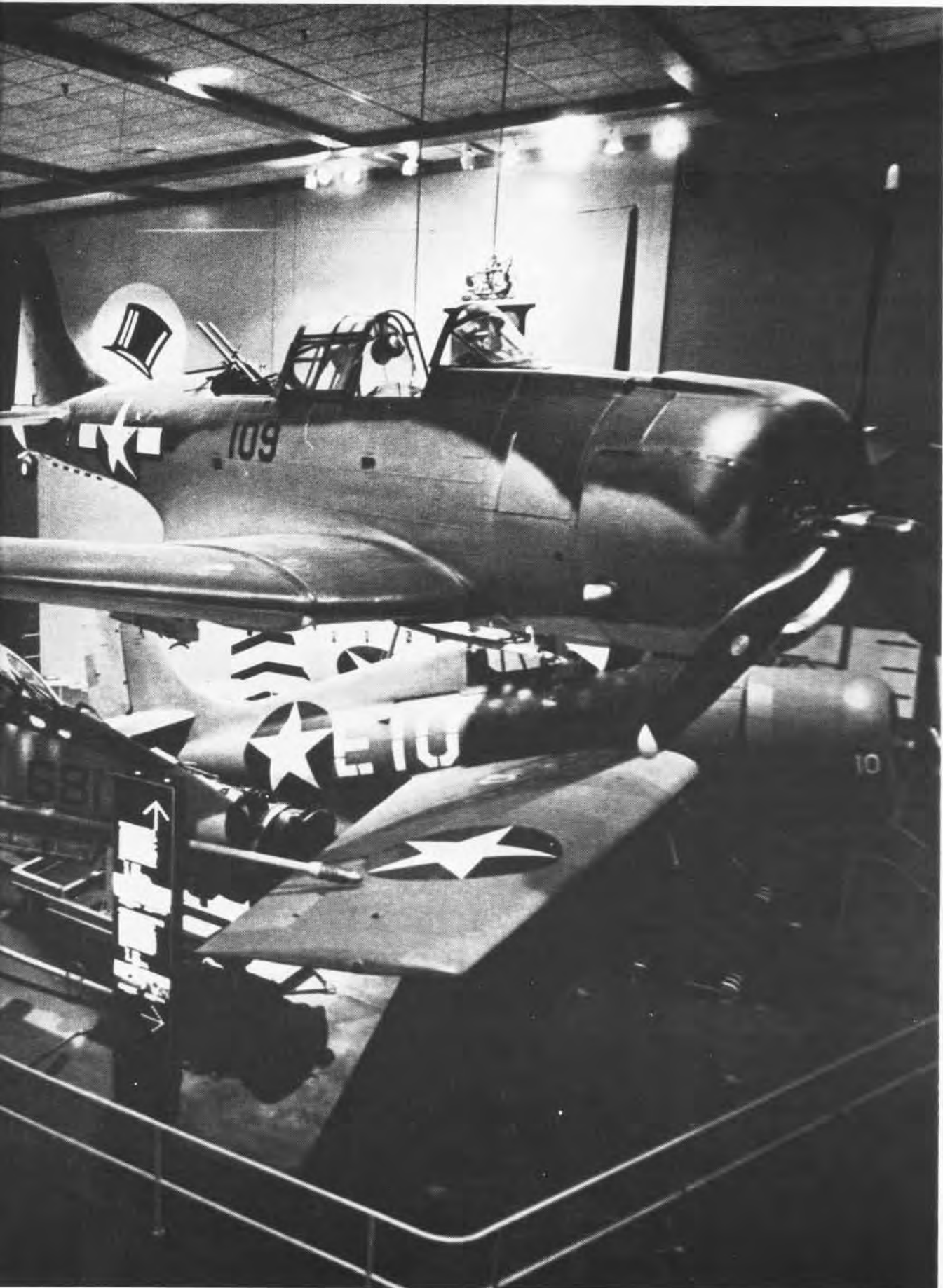
Audio/visual components, including a seascape viewed through the "ship's" side, were prepared by the Grumman Aerospace Corporation. Richard C. Milligan's award-winning team from GAC and Aerolog, Inc. filmed on wintery seas aboard *John F. Kennedy* and *America*. While the inaugural presentations depict current operations, the flexibility of filmed backgrounds allows for occasional substitution of less recent events. (A wag suggested Universal's interesting footage of a kamikaze attack in which a Zero flies straight into the bridge. . . .)

Grumman also donated the FM-1 *Wildcat* restored under the supervision of retired Captain William E. Scarborough. Other hangar bay aircraft:

- McDonnell-Douglas A-4C (a VA-76 *Skyhawk* refurbished by Naval Air Reserve Unit, NAF Andrews, Washington, D.C.)
- Boeing F4B-4 (restored by Naval Aeronautical Engineering Laboratory, Philadelphia)
- Douglas SBD-3 *Dauntless* (restored by NASM).

Although the carrier would serve as a focal point and overall display, there were many other aspects of sea-air operations to be orchestrated for a truly representative museum. Some facets could be covered in other exhibits: commercial flying boats in the Gallery of Air Transportation, lighter-than-air in the Gallery of Balloons and Airships, helicopters in the Vertical Flight Hall, the Schneider seaplanes in Exhibition Flight, and a large scale model of the NC-4 was requested for the Milestones of Flight Hall. Additionally, several non-carrier aspects would be covered on a smaller scale within the carrier.





Bill Bearden

SEA-AIR OPERATIONS GALLERY



operations using familiar museum techniques. In two levels, photos, paintings, models and various artifacts are statically displayed. Catapult development, uniforms and the Battle of Midway are among the subjects covered.

The third area is more dynamic — a portion of a typical pri-fly overlooking carrier landings, and a similar arrangement with a navigation bridge for the bow scene. Rear-

screen projection sound films are used in both locations.

Before leaving the island, the visitor has an opportunity to "fly" from the ship. In the ready room space, a six-minute film depicts a personalized briefing and a pilot's-eye F-14 flight. A catapult shot, air combat maneuvering and air-to-air refueling are climaxed by an arrested landing back aboard the ship.



At left, Grumman's presentations director Dick Milligan, whose previous credits include "Ready on Arrival," "Sea of Contention," and "No Points for Second Place." Above, team from

Aerolog, Inc. precariously films carrier landings with Panavision camera aboard America. Below, bow and ready room scenes from the gallery's audio/visual displays.

In much the same way as the average aircraft carrier — a floating city — has spaces of an urban composition (hobby shop, stores, library, etc.), USS *Smithsonian* would have its own "museum." This museum-within-a-museum could address the history of sea-air operations by means of models, photographs and other conventional methods. The final thematic unit concept was thus evolved.

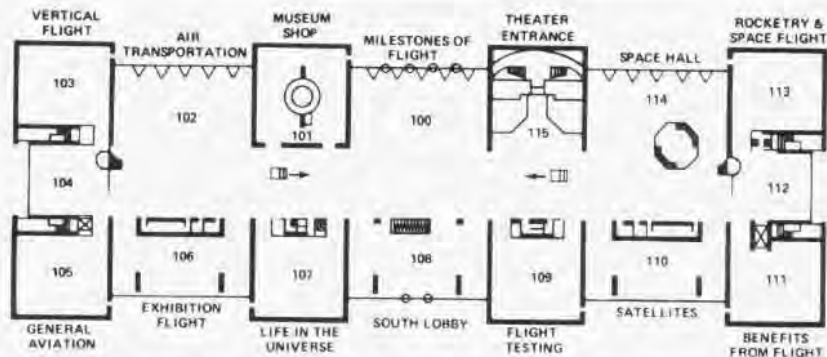
The Sea-Air Operations Gallery is divided into three major areas. The largest of these resembles a carrier hangar bay displaying the major artifacts, the four aircraft. The visitor enters through a portal resembling a simplified quarterdeck. Opposite, viewed through an open access hatch, the sea rushes by (back-projected film) creating the illusion of motion. Sounds commonly heard aboard ship add to the effect. Drop tanks, engines and other equipment usually found on a hangar deck heighten the ambience.

The Ship's Museum is the second main area. Situated beneath the "island," it features a generally chronological history of sea-air



Bill Bearden

NATIONAL AIR & SPACE MUSEUM FIRST FLOOR PLAN



Milestones of Flight (100) displays representative artifacts of major achievements in air and space flight.

Wright Kitty Hawk *Flyer*

Spirit of St. Louis

Bell X-1

North American X-15

Langley model #5

Dr. R. H. Goddard's rockets

(1926 to 1941)

Sputnik 1

Explorer 1

Mariner 2

Mercury Friendship 7

Gemini 4

Apollo 11 command module

Cavalcade of Flight (101). The Museum shop occupies most of this area. Also here are models for sale illustrating the history of aviation and space flight.

Air Transportation (102) features the story of air transportation of people, mail, and cargo.

Pitcairn Mailwing

Fairchild FC-2

Northrop Alpha

Ford Tri-Motor

Boeing 247

Douglas DC-3

Vertical Flight (103) gallery includes many aspects of vertical flight, such as autogiros, helicopters and gyrogliders.

Sikorsky H-32

Bell VH-13J

Pitcairn AC-35 Autogiro

Kellett YO-60 Autogiro

Hiller XH-44 Hiller-Copter

Bensen Gyrocopter

Bensen Gyroglider

Focke-Achgelis FA-330

Pentecost Hoppi-Copter

Sikorsky XR-4

Hiller Flying Platform

Bell Rocket Belt

West Gallery (104) is for temporary exhibits.

Wright Military Flyer

Grumman *Gulhawk II*

Boeing P-26

North American F-86A

Curtiss P-40E

General Aviation (105) features the very broad field of general aviation, emphasizing the private pilot.

Beech Bonanza *Waikiki Beech*

Piper PA-12 *City of Washington*
Cessna 180 *Spirit of Columbus*
Schweizer 2-22 Sailplane
Fulton Airphibian (car section only)

Exhibition Flight (106) emphasizes barnstorming, aerobatics, air-racing and air shows.

Waco 9

Buecker Jungmeister

Turher Laird Special *Miss Champion*

Wittman Buster

Pitts Special

Life in the Universe (107) explores the possibility that life may exist beyond Earth.

Mariner 10

Mars globe

Viking Mars lander model

USS Enterprise model

Independence Avenue Lobby (108) houses a display of aeronautical and astronomical trophies and two large wall murals — Robert McCall's "The Space Mural — A Cosmic View" and Eric Sloane's "Earth Flight Environment."

Flight Testing (109) highlights the historical evolution of flight research aircraft and examines the interaction of flight testing, ground testing and research vehicles.

Hawker-Siddeley Kestrel

Lockheed Vega "Winnie Mae"

Bell XP-59

Lillenthal Glider

Satellites (110) is an exhibit of sounding rockets and many of the satellites used for scientific purposes, communications, weather and Earth observation.

Benefits From Flight (111) portrays some of the many ways that aviation and space flight have affected our society.

East Gallery (112)

Lunar Orbiter

Surveyor

Apollo Lunar Module 2

Rocketry and Space Flight (113) treats the history of the fact and fantasy of space flight from the 13th century to the present.

Space Hall (114) contains large rockets, guided missiles and manned spacecraft.

German missiles

V-2

V-1

Rheintochter 1

X-4

HS-298

Missiles and space launch vehicles

Jupiter C

Vanguard

Scout D

Minuteman III

Poseidon C-3

Manned spacecraft

Apollo-Soyuz test project: command and service module

Docking module

Soyuz spacecraft

Skylab

Skylab (multiple docking adapter/airlock module)

Orbital workshop

Atlas

Atlas-Centaur

Atlas Agena

Titan III C

Thor-Delta

Saturn 1B

Saturn V

Skylab cluster

Future Space missions

M2-F3 lifting body

Space shuttle

Mars mission spacecraft

Modular space station

Expanded capability space base

Lunar base model

Theater (115) is equipped with the new large-format IMAX projection system. Visitors will view films related to flight.

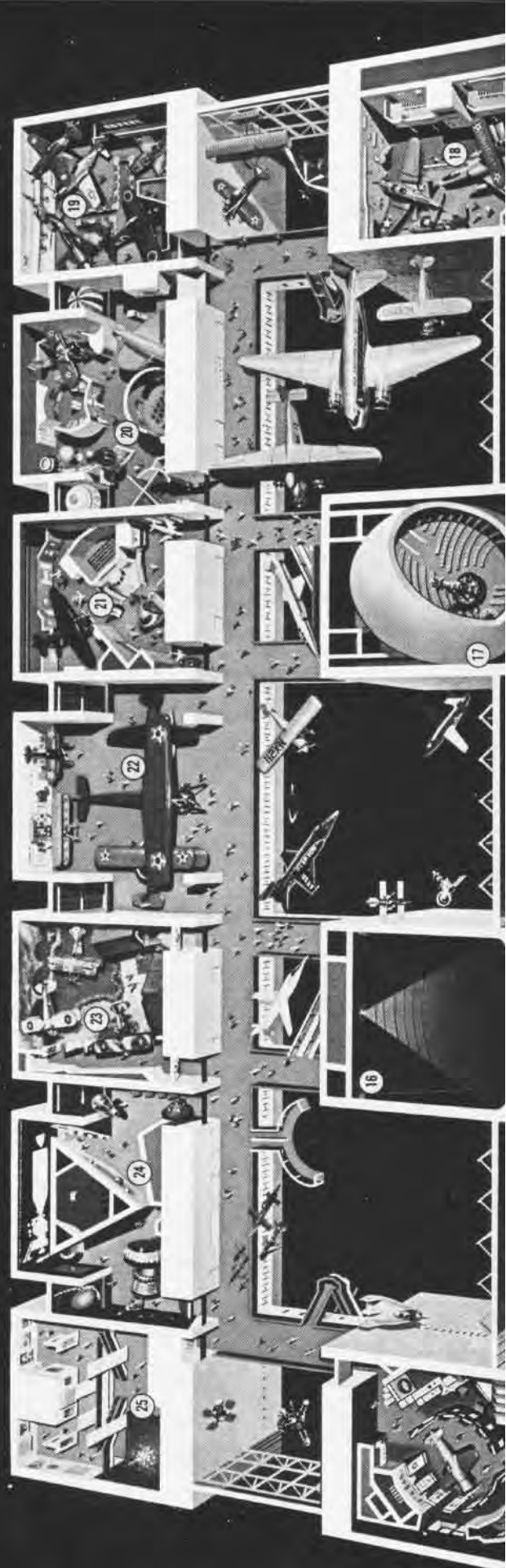
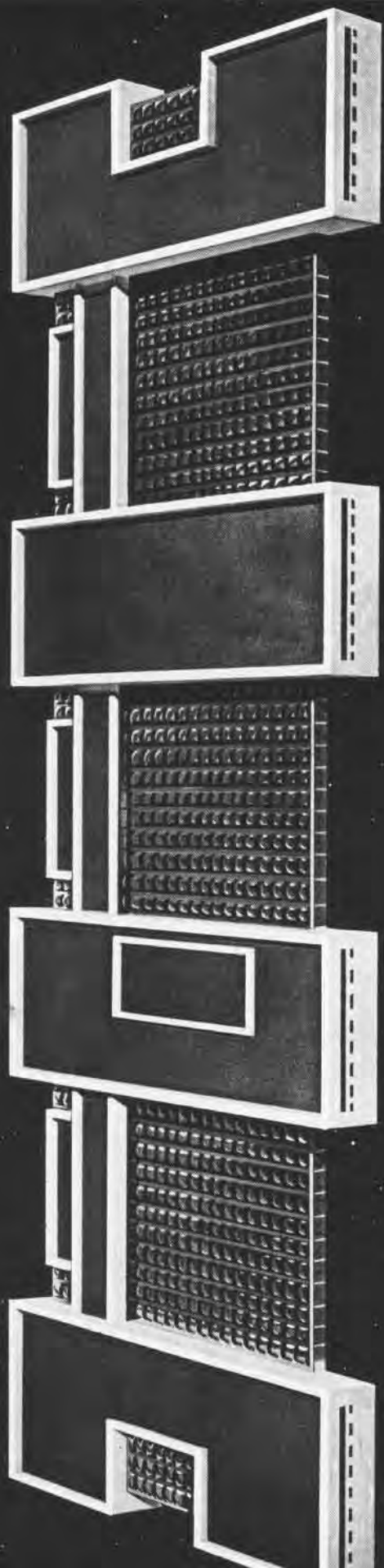
Moving Stairways

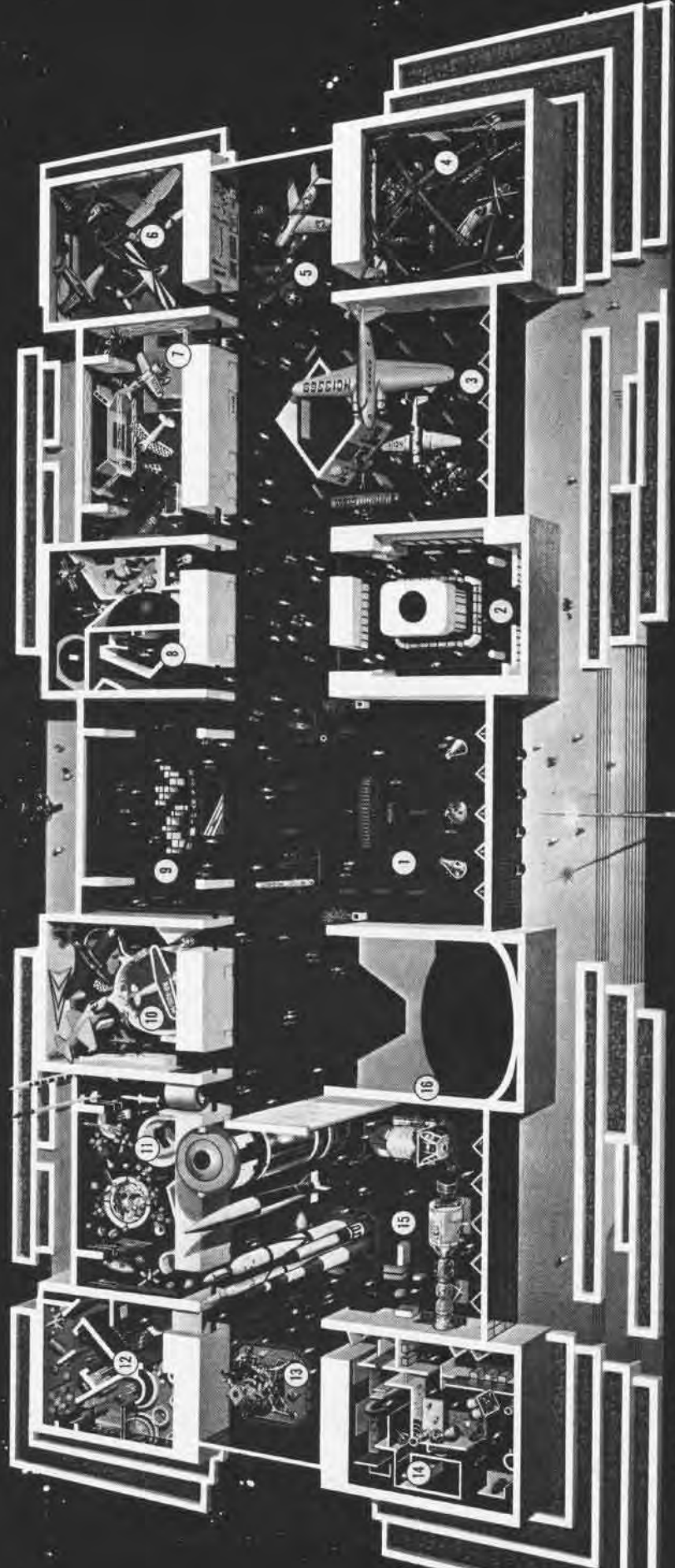
Douglas D-558 *Skyrocket*

Lockheed F-104 *Starfighter*

NATIONAL AIR AND SPACE MUSEUM

SMITHSONIAN INSTITUTION



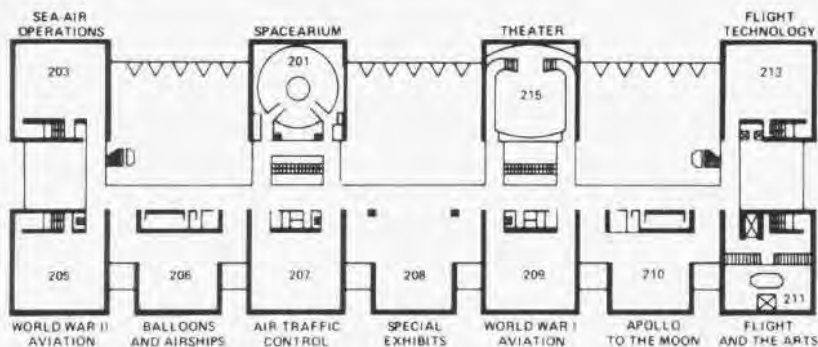


GROUND LEVEL

- 1. Milestones of Flight
- 2. Museum Shop
- 3. Air Transportation
- 4. Vertical Flight
- 5. West Gallery
- 6. General Aviation

SECOND LEVEL

- 7. Exhibition Flight
- 8. Life in the Universe
- 9. Independence Lobby
- 10. Flight Testing
- 11. Satellites
- 12. Benefits from Flight
- 13. East Gallery
- 14. Rocketry and Space Flight
- 15. Space Hall
- 16. Theater
- 17. Albert Einstein Spacearium
- 18. Sea Air Operations
- 19. World War II Aviation
- 20. Balloons and Airships
- 21. Air Traffic Control
- 22. Special Exhibits
- 23. World War I Aviation
- 24. Apollo to the Moon
- 25. Flight and the Arts
- 26. Flight Technology



SECOND FLOOR PLAN

Albert Einstein Spacearium (201). The versatile Zeiss Model VI planetarium instrument and numerous auxiliary projectors present a realistic simulation of the heavens to the audience.

Sea-Air Operations (203) is highlighted by a reproduction of a carrier hangar deck.

Boeing F4B-4
Douglas SBD *Dauntless*
Douglas A4C *Skyhawk*
Grumman FM-1 *Wildcat*

World War II Aviation (205). Air history of WW II.

Macchi MC 202 *Folgore*
Mitsubishi A5M-6 *Zero*
North American P-51D *Mustang*
Messerschmitt Bf. 109G
Supermarine *Spitfire Mk VII*
Martin B-26 *Marauder "Flak Bait"*
(nose)

Balloons and Airships (206) tell the story of lighter-than-air flight.

Curtiss F9C-2 *Sparrowhawk*
Pilgrim gondola
Explorer II gondola

Air Traffic Control (207) highlights history and equipment. Includes a reproduction of first federal air traffic control center, Newark, N.J.

Lockheed *Vega* ("Amelia Earhart")

Special Exhibits (208) will be used for temporary exhibits.

Wright EX "Vin Fiz"
Curtiss R3C-2
Fokker T-2
Lockheed Sirius "Tingmissartog"
Douglas World Cruiser "Chicago"

World War I Aviation (209) is a diorama of the capture of a Fokker D-VII which took place near the end of WW I.

Spad VII
Spad XVI
Fokker D-VII
Nieuport 83E fuselage

Apollo to the Moon (210) presents the story of the U.S. manned space flight programs. Four lunar samples highlight the hall.

Lunar Surface Equipment

Early *Apollo* surface experiments package
Apollo lunar surface experiments package
Solar wind composition experiment
Lunar surface stereo close-up camera
Modular equipment transporter

Flight and the Arts (211) is the Museum's art gallery. This hall displays the artists' special perceptions of air and space.

Flight Technology (213) gallery explains and demonstrates the principles of flight, processes of flight vehicle development, contributors to the various specialties involved and the interrelations among these specialties. Artifacts include the Hughes H-1 racer and piston, turbo-jet and rocket engines.

Apollo lunar roving vehicle
Lunar hand tools and hand tool carriers
Apollo lunar surface drill
Equipment (food samples, medical and hygiene and photographic equipment)
Memorabilia
Spacecraft
Able and *Baker* primate spacecraft
Project *Mercury* spacecraft
Freedom 7
Gemini 7 spacecraft
Skylab 4 command module
Apollo subsatellite
Pioneer IV space probe



Bill Bearden



Inevitably, the relative merits of static display versus dynamic illusion will be argued. The serious student may prefer a quiet, cathedral/relic approach, while there are those for whom a total, environmental effect is more satisfying. More emphasis can be applied in either direction by NASM. It is likely that vibration, automated mannikins and more advanced audio/visual systems will be employed in the future.

For the present, the Sea-Air Operations Gallery stands as an innovation in the art of aviation storytelling. Millions of tourists in the nation's capital now have an opportunity never before available—the chance to visit a carrier at sea.

On June 28, after two years of accelerated and sometimes frantic effort, Secretary of the Navy J. William Middendorf II "commissioned" USS *Smithsonian*. From the quarterdeck he noted, "The floors are now decks, walls are bulkheads and stairs are ladders. Welcome Aboard!"



At left, VAdm. Houser, "Papa" of the Navy project, with the gallery insignia. Above, the Blue Angels highlight the museum's spectacular film salute to flight on a gigantic 50x70-foot screen in the IMAX theater. The 25-minute super motion picture is one of the building's most popular attractions.



At left, the Fresnel lens exhibit. Above, the scale model of the NC-4 in the Milestones of Flight Hall.

Photos by Bill Bearden

- 1909 Cdr. F. L. Chapin, naval attache in Paris, reported his observations of Rheims Aviation Meet. He expressed the opinion that "the airplane will have a present usefulness in naval warfare and that the limits of the field will be extended in the near future." He prophetically noted two means of operating aircraft from naval vessels. The first was to use the Wright launching device (catapult) to launch planes from the cleared quarterdeck of battleships; the second, to construct a floor (flight deck) over the deck houses of auxiliary ships to provide clear space for takeoffs and landings.
- 1910 SecNav informed the U.S. Aeronautical Reserve, a group of private citizens formed to advance aeronautical science to supplement the national defense, that all correspondence on aviation should be referred to Capt. W. I. Chambers. First recorded reference to provision for aviation in Navy Department organization.
- 1911 Lt. T. G. Ellyson successfully took off from an inclined wire rigged from the beach down to the water. His report stated: "The engine was started and run at full speed and then I gave the signal to release the machine. . . . I held the machine on the wire as long as possible as I wanted to be sure I had enough headway to rise and not run the risk of the machine partly rising and then falling. . . . Everything happened so quickly and went off so smoothly that I hardly knew what happened except that I did have to use the ailerons, and that the machine was sensitive to their action."
Bureau of Navigation asked the Naval Observatory for the loan of a boat compass to put in an aircraft as a navigational instrument in experimental work.
- 1912 Lt. B. L. Smith, second Marine officer assigned to flight training and later designated Naval Aviator No. 6, reported for instruction at the Naval Academy.
- 1916 SecNav issued orders establishing formal flight testing as basis for accepting new aircraft and procedures for determining if operational aircraft were safe to fly.
Guided missile equipment, a piloted hydro-aeroplane equipped with automatic stabilization and direction gear, was demonstrated for BuOrd at Amityville.
- 1917 Reports submitted to Secretaries of War and Navy by Bolling Mission, which had studied air developments in Europe, recommended that air measures against submarines have precedence over all other air measures and that the U.S. secure as many coastal patrol stations in Europe as possible.
In tests which led to an additional order for 300 Simon radio transmitters, radio signals sent from an R-6 seaplane flying from NAS Pensacola were received by Naval Radio Station, New Orleans, 140 miles away.
A winged fowl anchor was adopted as the official device to be worn on the left breast by qualified Naval
- Aviators. Design was essentially the same as today.
Air training station and patrol base established at Naval Operation Base, Hampton Roads to conduct experimental work in seaplane operation.
Joint Technical Board on Aircraft issued report establishing production program of 1,700 operational-type aircraft.
Lt. L. H. Maxfield, commanding Naval Air Detachment, Akron, Ohio, reported the qualification of students as lighter-than-air pilots and requested they be designated Naval Aviators (Dirigible). These were the first trained specifically as dirigible pilots.
- 1918 The flywheel catapult, forerunner of those installed later aboard *Lexington* and *Saratoga*, successfully launched flying bomb at Copiague, Long Island.
Aircraft Radio School, Pensacola began a course of instruction for aircraft radio electricians. School later transferred to Harvard University.
Ltjg. David S. Ingalls became Navy's first ace while on a test flight in a Sopwith *Camel*. He sighted an enemy two-seat *Rumpler* over Nieupoort and, in company with another *Camel*, he attacked and scored his fifth aerial victory.
- 1921 Bureau of Aeronautics, under RAdm. W. A. Moffett began functioning as organizational unit of the Navy.
- 1922 First mass torpedo practice against live target was conducted off Virginia Capes by 18 PTs of Torpedo and Bombing Plane Squadron One. The squadron attacked USS *Arkansas*, one of a three-battleship formation that was maneuvering while running at full speed. The event demonstrated that torpedoes could be successfully launched from aircraft and be made to run straight.
Commanding Officer, NAS Anacostia, proposed that radio be used to detect passage of a ship at night or in heavy fog. This came about because of a radio signal observed by members of the aircraft radio laboratory at the air station when a passing river steamer interrupted experimental high frequency radio transmissions between Anacostia and a receiver across the river at Hains Point — a basic step leading to U.S. Navy invention of radar.
- 1924 First Navy parachute school opened at NAS Lakehurst to train enlisted men in the care, operation, maintenance and testing of parachutes.
An N-9 seaplane equipped with radio control and with no human pilot aboard flew for 40 minutes at the Naval Proving Grounds, Dahlgren. Plane sustained damage while landing and sank, but test proved practicability of radio control of aircraft.
- 1925 Cdr. John Rodgers, Lt. B. J. Connell and crew of three flew a PN-9 1,841.12 statute miles from San Francisco toward Hawaii before being forced down by lack of

SEPTEMBER

fuel. They then sailed their plane 450 miles to Kauai Island, Honolulu.

CNO directed that all heavier-than-air Naval Aviators, not already qualified to pilot landplanes, be given training in landplane operation.

1931 Lt. A. M. Pride piloted Navy's first rotary wing aircraft, an XOP-1 autogiro, in landings and takeoffs aboard USS *Langley* while underway.

The keel for USS *Ranger*, first ship designed and constructed as a carrier, was laid at Newport News Shipbuilding and Drydock Company.

BuAer announced that studies were being made into catapulting landplanes on wheels. This was preliminary step in development of flush deck catapults for launching landplanes from carriers.

1933 Six Consolidated P2Y-1 flying boats of Patrol Squadron 5F flew nonstop from Norfolk, Va., to Coco Solo, Canal Zone, a record distance formation flight of 2,059 miles — in 25 hours 19 minutes.

1938 A radio-controlled N2C-2 target drone engaged in simulated dive-bombing attack against battleship *Utah* in test firing of anti-aircraft battery. This is considered first demonstration of air-to-surface missile.

1939 The President proclaimed U.S. neutrality in the European war and directed Navy to organize a Neutrality Patrol to report and track any belligerent air, surface or underwater units in the sea approaches to the U.S. and West Indies.

1942 First Naval Air Transport Service flight to Argentina, Nfld., marked beginning of air transport expansion along eastern seaboard. Air Transport Squadron Two, Alameda, established a detachment at Pearl Harbor and began survey flight to South Pacific preliminary to establishing routes between San Francisco and Australia.

1944 BuOrd reported that Office of Scientific Research and Development was investigating practicability of jet-propelled, guided anti-aircraft weapon. This led to approval of developmental program known as Project *Bumblebee*.

Flight Safety Section established in DCNO(Air) to direct and supervise aviation safety program.

1945 USS *Midway*, first of the 45,000-ton class aircraft carriers, commissioned at Newport News, Va.

1946 *Truculent Turtle*, a Lockheed P2V *Neptune*, flew from Perth, Australia, to Columbus, Ohio, in 55 hours, 17 minutes and broke world's record for distance-without-refueling with a flight of 11,235.60 miles (page 24).

1947 A V-2 rocket was launched from flight deck of *Midway*

in first firing of large bombardment rocket from ship at sea.

1948 JRM-2 *Caroline Mars* of VR-2 carried 68,282 pounds of cargo 390 miles from Patuxent River, Md., to Cleveland, Ohio, heaviest payload ever lifted in an aircraft.

1950 An HO3S-1 helicopter, equipped with an automatic pilot developed by the Aeronautical Instruments Laboratory, with three-axis automatic control successfully flew at Mustin Field, Philadelphia.

1955 Navy announced that all fighters in production would be fitted with gear for inflight refueling, establishing the technique as standard operational procedure.

Navy responsibilities in connection with plans to launch an earth satellite during International Geophysical Year were assigned to Chief of Naval Research.

1958 Antisubmarine Warfare Laboratory established at NADC Johnsville, Pa.

1959 Airship training program terminated.

1961 Task Force 135, including *Shangri La* and *Antietam*, was ordered to Galveston-Freeport area of Texas for disaster relief operations after Hurricane *Carla*.

1963 Five HS-9, NAS Quonset-based SH-3As rescued 28 workmen from two Texas towers in gales off Cape Cod.

1964 Three ski-equipped *Hercules* of VX-6 made first flight in history from Australia to Antarctica.

1965 A flag officer was designated CNO representative and deputy to DOD Manager for Manned Space Flight Support Operations with additional duty as Commander Space Recovery Force, to coordinate and consolidate operational requirements in providing Navy resources to support manned space flights.

1966 Naval Air Test Center's shipboard suitability trials of RH-3A helicopter as a minesweeper completed.

Oriskany helos rescued entire crew from British merchant ship *August Moon* in heavy seas on Pratas Reef 175 miles southeast of Hong Kong.

1970 During Jordanian crisis, *Kennedy* joined *Saratoga* and *Independence* in Med, followed by other Navy ships.

1972 *Kennedy* and *Inchon* participated in *Strong Express*, largest joint exercise in NATO's history involving land, sea and air operations in North Atlantic.

1973 Last squadron of Marine F-4 *Phantoms* on Asian mainland flew out of Thailand. Unit was last Marine combat force to leave after 11-year commitment in Indochina.



Truculent Turtle

Truculent: fierce, cruel, savage, ferocious, pugnacious, bellicose.

Webster's New World Dictionary

A Navy P2V *Neptune* called the *Truculent Turtle* flew 11,236 miles from Perth, Australia, to Columbus, Ohio, in 1946. The 55-hour, 18-minute journey signaled the longest nonstop, nonrefueled flight in history. This record remained unbroken until 1962 when an Air Force B-52 traveled 12,519 nonstop miles. Commander T. D. Davies commanded the *Turtle* and shared duties with three other pilots, Commanders E. P. Rankin and W. S. Reid and LCdr. R. A. Tabeling. The crew, its supporting units and the *Neptune* itself certainly possessed some of Webster's truculent qualities. The mission demanded it.

In a July 1946 memo to the Secretary of the Navy, Chief of Naval Op-

erations Admiral Chester W. Nimitz wrote, "For the purpose of investigating means of extension of present patrol aircraft ranges, physiological limitations on patrol plane crew endurance and long-range navigation by pressure pattern methods, it is proposed to make a nonstop flight of a P2V-1 aircraft from Perth, Australia, to Washington, D.C. (11,568 statute miles), with the possibility, weather permitting, of extending the flight to Bermuda."

Approval was forthcoming. Support units went to work. Ships were positioned along part of the great circle route on which the *Neptune* would fly. Perth was selected as a starting point primarily because it was diametrically halfway around the world from Bermuda. Air routes were fairly well established along the eastward flight path. Further, should the flight be

terminated short of Bermuda, landing could be made at a variety of American airfields.

The *Turtle* was the third in the first production lot of *Neptunes*, bureau number 89082. Its armament had been removed, its nose fairing lengthened. Additional fuel tanks, including a 2,200-gallon fuselage tank, were installed. There was a soundproof bunk room for crew rest en route. A pair of 2,500-hp Wright Duplex Cyclones were the power plants, along with four, side-mounted JATO bottles. Each of these had 1,000 pounds of static thrust and a 12-second life.

The P2V carried 8,467 gallons of gas and grossed out at 85,575 pounds. Altogether the *Neptune* would have to lift 268 percent of its own weight to get off the ground.

The Royal Australian Air Force's Pearce Airdrome had a 6,000-foot

runway. The *Turtle* would need every bit of it. Not a few onlookers were dubious and expected to witness a fireball shortly after takeoff.

The crew, however, was confident. Extensive, detailed planning and a can-do spirit had been injected into the project. For example, the *Turtle* was so heavy, fully loaded, that it had to be partially fueled on the line. The balance of gas was pumped aboard after the P2V was aligned for takeoff. Taxi tests had revealed that a full load of gas put too much stress on the landing gear.

Officials were so concerned with weight that consideration was even given to removing the starters, after the engines had been turned up. This was not done, however.

Weather was examined closely. Pre-launch conditions required a forecast of westerly winds, little or no turbu-

lence over Australia, a weak equatorial front, and fairly good weather over the U.S. Tail winds were desired but not mandatory. The great circle route over which they would fly would expose them to prevailing tail and head winds so they would be satisfied to break even.

All systems were go and on September 29, 1946, Cdr. Davies and his crew started engines. Rankin was copilot on this first leg. Reid manned the fuel dumping station and Tabeling was at the radio station on the flight deck.

Post-start checks were normal. The flyers held pressure on the brakes as Davies eased the throttles full forward. The *Turtle* seemed to shudder as the engines labored at maximum power.

Brakes were released. The *Turtle* charged forward. As it reached 100 miles an hour, the JATO units were

ignited. All four fired sharply. Speed rose to 125 and Davies eased the yoke back. Slowly the flying machine began to rise. With slightly more than 1,000 feet of runway remaining, the *Neptune* was airborne and climbing. The JATO charges had been expended but they had done their job. The marathon was safely under way.

Although radio communications were far from perfect, those on the ground were able to keep reasonably good track of the P2V. The route selected would take the *Neptune* over central and northern Australia, New Guinea, the Caroline and Marshall Islands, Bikini and Midway. The *Turtle* would cross the California coast north of San Francisco and continue, hopefully, across the continent to the nation's capital and onward over another stretch of ocean to Bermuda. They would transit equatorial weather



Experienced patrol plane pilots all, Truculent *Turtle's* crew posed before flight. Left to right, Davies, Rankin, Reid and Tabeling.

P2V-1 89082 CMDR DAVIES DEPARTED PERTH
291010Z X ESTIMATES SIXTY ONE HOURS
TO BERMUDA VIA WASH. D.C.
(Message from CNO to supporting
units, September 29, 1946)



Long since retired, the *Truculent Turtle* is now on permanent display at the Naval Air Station in Norfolk, Virginia.

belts and portions of both the northern and southern hemispheres.

Turbulence was encountered over the sweltering Simpson Desert in Australia and heavy weather over Bougainville and New Britain caused some concern. It was over the U.S., however, that the elements imposed their severest challenge. Large amounts of ice collected on the leading edges and other portions of the airframe. The *Turtle* had no deicing equipment. Because the crew had to maintain altitude over the mountains, the use of power was their only resource. They struggled over the western and mid-western U.S., part of the time through rain, sleet and snow.

It soon became apparent that the *Truculent Turtle* would not reach Bermuda, or Washington, D.C., for that

matter. Too much fuel had been used in the battle with weather. Still, the aircraft had reached the California coast 44 hours after departing Perth, a 9,000-mile distance. This alone topped the previous nonstop record of 7,916 miles set by the *Pacusan Dreamboat*, a B-29 which flew from Guam to Washington, D.C.

In the 11 hours and 18 minutes from feet dry over the U.S., the *Turtle* passed over Ogden, Omaha and Peoria. The decision was ultimately made to land at Naval Air Station, Columbus. On Tuesday morning, the first of October, the *Truculent Turtle* touched down—after almost two-and-a-half airborne days. About 160 gallons of fuel remained in the tanks although cockpit gauges indicated less. The crew had averaged about 200

mph on the journey.

The event was widely heralded in the ensuing news media reports. It was learned that one cargo item aboard the *Neptune* could have been described as unnecessary to the mission. Yet it was hard to criticize the *Truculent Turtle* for bringing a gift to the United States from Australia—a 35-pound baby kangaroo.

Each pilot was awarded the Distinguished Flying Cross. Valuable data was gained from the flight. It demonstrated that four pilots could fly an airplane nearly 12,000 miles and, at the end, arrive in sound physical condition.

The *Truculent Turtle* and those who flew it exhibited that brand of professional skill which is a hallmark in the world of Naval Aviation.

BETTER HAWKEYE RADAR

By mid-1977, the Navy will have a thoroughly tested system which will perform all the missions attributed to the E-2 family, and then some. It is the E-2C with the AN/APS-125 improved radar system. It will detect targets at longer ranges and at all velocities; automatically detect and track in all environments, especially overland; reduce the effects of interference on radar detection; have an improved surface surveillance capability; provide high-speed target processing and decrease the false alarm rate; eliminate time-consuming adjustments for satisfactory performance; replace long-warm-up-time analog circuits with high-speed digital functions. The system will do all this without an increase in weight, space or cooling requirements, and without severely impacting present software and computer mandates — and with an improved built-in test capability and cost effectiveness.

Ever since the Navy became active in carrier-based AEW missions, the need for improvement in radar surveillance has been of paramount importance. The Navy also needed tactical surveillance of areas around the fleet for its protection from air and surface hostilities. That need led to introduction of the E-1B in the late 1950s. The E-1B *Tracer* contained the AN/APS-82 radar. Its detection capability was limited to "eyeball" detection in uncluttered areas, such as the blue-water environment. Long-range detection was inadequate.

The successor to the E-1B was the E-2A, first of the *Hawkeyes*. Introduced into the fleet in the early 1960s,

this aircraft has the same basic airframe that is used today for the E-2C. The E-2A contained AN/APS-96 radar and housed a rotating antenna above the fuselage. Although its long-range performance was better than the E-1Bs, the need for a larger and faster airborne computer brought about the E-2B in 1969. The Litton L-304 microelectronic general-purpose computer brought greater efficiency to radar/IFF correlation, target height determination and tracking and display programs. Overwater command and control, surface surveillance and search and rescue were routinely accomplished. In the near-land and overland environments, however, numerous false alarms plagued the system and its operators.

The E-2C with its improved radar, AN/APS-120, was introduced into the fleet in 1973. This radar is capable of long-range detection, using a separate receiver channel to receive and suppress false alarms; and automatic detection and tracking overwater and near land. By 1974, E-2Cs were providing AEW, intercept control, passive AEW, strike control, surface surveillance, air traffic control, search and rescue, ASW support and communications relay.

To increase the capabilities of the existing radar system even further, the Naval Air Systems Command, with the Naval Research Laboratory, Grumman Aerospace Corporation and General Electric Corporation, developed the AN/APS-125.

The Naval Air Test Center joined the AN/APS-125 development program immediately after BIS trials on

the E-2C in 1973. To date, two Navy preliminary evaluations have been performed in conjunction with operational evaluations. The first joint preliminary operational evaluation, in October 1974, consisted of five flights and was conducted to determine if the advanced radar processing system (ARPS) was technically and operationally sound, and to test weapons systems compliance with design specifications. ARPS met, and generally exceeded, the specification criteria in all areas tested and the go-ahead was given to manufacture the AN/APS-125.

In November 1975, the second preliminary operational evaluation began. It was completed in February 1976. A comprehensive and rigorous test program yielded tons of data which are still being analyzed to determine which areas of the AN/APS-125 can be improved and incorporated into the fleet configuration. All analysis results to date have been favorable, and full production was authorized in March.

Two more comprehensive tests are planned for the APS-125, a Navy technical evaluation and an operational evaluation. These will test a fleet-configured production system, eliminate breadboard and instrumentation problems, fully evaluate built-in-test features and examine deficiencies cited by previous testing. They will use the system operationally to define performance characteristics.

The Naval Air Systems Command plans to accept the first E-2C with the APS-125, to be used for technical evaluation, in December. The second is scheduled to go to the fleet next spring.



THE CRUSADERS



RF-8Gs with Bicentennial markings.

What the Navy needed in 1953 was a Mach 1 plus air superiority fighter capable of operating from an aircraft carrier. Chance Vought aircraft designers conceived the basic F-8 design and constructed the prototype.

The prototype XF8U-1 flew from Edwards AFB, Calif., on March 25, 1955. At the controls was Vought's test pilot, John W. Konrad. He took the XF8U-1 to a straight and level Mach 1 on that first 52-minute flight. No other prototype had ever done that.

The first production F8U-1 took to the air September 30, 1955. It com-

pleted its carrier qualifications aboard USS *Forrestal* by April 1956 and the Navy accepted the first squadron *Crusaders* on December 28 of the same year.

After that, speed records began falling. In August 1956, Commander Duke Windsor flew an F8U-1 (F-8A) over China Lake, Calif., to a new world speed record, 1,015 miles per hour, tumbling the old record held by an Air Force F-100 by almost 200 mph. Cdr. Windsor was awarded the Thompson Trophy for his achievement. Captain Bob Dese and LCdr. Paul Miller, flying in formation in

June 1957, set a Pacific-to-Atlantic speed record of three hours, 28 minutes. They were launched from USS *Bon Homme Richard* off the coast of California and recovered on USS *Saratoga* off Florida. Both aircraft refueled over Texas. Maj. John Glenn, USMC, former astronaut and senator from Ohio, set a Los Angeles-to-New York mark of 3 hours, 23 minutes. Maj. John Glenn's photo-reconnaissance version *Crusader*, an F8U-1P, averaged 723.52 mph., or Mach 1.1 at 35,000 feet.

It was apparent that Vought and the Navy had an exceptional aircraft, and

it was no surprise that the 1957 Collier Trophy was awarded jointly to Navy and Vought for the design and achievements of the *Crusader*. It was only the second time in the history of the trophy that a fighter aircraft had been honored.

In the years following these record-setting performances, 26 Navy and ten Marine squadrons were equipped with the versatile, durable and extremely reliable aircraft. Approximately 5,000 Navy and Marine pilots have flown many of the 1,264 *Crusaders* that were built. These pilots, in addition to French, U.S. Air Force and a few British exchange pilots, amassed an incredible two million flight hours in the cockpits of the F-8s.

Vought built eight models of the *Crusader*, six fighters and two photo versions. The first F8U-1 was powered by a P&W J-57-P4 engine and afterburner, which enabled it to exceed 1,000 mph. Not long after its production line was in full swing, Vought began building the nearly identical F8U-1P photo version which was delivered to the Navy in 1957. Subsequent models produced refinements to increase the *Crusader's* speed, extend its radar range and make it more of an all-weather fighter. In 1961, the F8U-2NE (F-8E) was the end result of the refinements incorporated. It had all-weather capability and flew fast and high with its P&W J-57-P20 engine (1,200 mph).

The F8U-1T was a unique two-seat *Crusader*. Originally produced as the 74th F8U-1, it was rebuilt as a trainer and made its first flight as the F8U-1T in February 1962. The rear cockpit has a complete set of dual controls. The "Twosader" is powered by a P&W J-57-P20 and features a parabrake for landings. It was once assigned to the Navy Test Pilot School at the Naval Air Test Center, Patuxent River.

However, the *Crusader* was more than just a speed machine or reliable aircraft or even an odd bird. It was also a fighting bird. The *Crusader* appeared for the first time in a hostile area in 1958 when Navy aircraft flew to stabilize a politically volatile Middle East crisis. Four years later, RF-8As gathered outstanding photographic evidence of Soviet missile sites in Cuba.

In Southeast Asia, *Crusaders* functioned as day, all-weather fighters, attack aircraft and as photo-reconnaissance platforms. *Crusader* pilots ma-



neuvered their birds for a total of 19 kills of Mig 17s and 21s for the highest kill ratio of any American aircraft that participated in the war. Pilots were so enthused over the *Crusader's* performance that they designed and sported flight jacket patches to express their feelings. Two popular patches were: "Mig Master" and "When you're out of F-8s, you're out of fighters."

There were also some unusual incidents. As an example, in 1972 two F-8 pilots jumped a Mig-17 near Haiphong Harbor and attempted to close within gun range. The distance inevitably narrowed between the enemy and the *Crusaders*, but before either *Crusader* could fire a round, the Mig-17 pilot ejected. Neither F-8 pilot could claim credit for the "kill."

At the Annual *Crusader* Ball held in San Diego earlier this year, guest speaker John W. Konrad told the gathering of other amazing F-8 feats. They included a successful wheels-up touch-and-go, an uneventful wings-folded takeoff and landing, and a launching with wings folded. That time the pilot spread the *Crusader's* wings in flight and, after wiping the sweat from his brow, completed a normal landing. The *Crusader* has proven very versatile.

Remaining in military service today are the RF-8Gs of VFP-63, the RF-8Gs of the Naval Air Reserve and the 38 F-8Es of the French Navy.

In July 1942, a group of photo interpretation officers and photographer's mates reported for duty in the South Pacific to form a photo interpretation unit. Shortly after the unit was formed, the first reconnaissance mission was flown over Guadalcanal in Army B-17s using Navy equipment operated by Marine Corps photographers.

Now, 34 years since Guadalcanal, VFP-63 is the only light photographic squadron in the Navy. It joins the RA-5C heavy reconnaissance attack photographic squadrons in providing photo detachments to air wings in the Atlantic and Pacific Fleets.

In addition, the VFP-63 photo lab provides the detachments with their own film, film processing and repair facilities for all RF-8G cameras, mounts and related components. The photo lab also processes film for other military agencies and provides services for shore and fleet activities based at NAS Miramar, San Diego, Calif.

Today, VFP-63 photo detachments deployed to the Western Pacific and the Mediterranean fill over half of all aerial reconnaissance requirements for the Navy.

In 1949, Light Photographic Squadron 63 was commissioned as Composite Squadron 61 at NAS Miramar and Composite Squadron 62 (VC-62, later VFP-62) was commissioned at NAS Norfolk, the first formally organized

carrier photo units assigned carrier-type aircraft specially-equipped for photographic missions.

In 1956, the squadron was redesignated VFP-61; in 1959, VCP-63; in 1961, VFP-63.

Originally assigned F8F-2P *Bearcats*, the squadron in rapid succession, acquired F4U-5P *Corsairs*, PB4Y-1P *Liberators*, F6F-5P *Hellcats*, F9F-2P *Panthers* (the squadron's first jet, 1950), F2H-2P *Banshees*, F9F-6P *Cougars*, F8U-1P (RF-8A) *Crusaders*, A3D-2P *Skywarriors* and the present RF-8G *Crusader*.

The F8U-1P *Crusaders* in service from 1957 to 1964 were subsequently rebuilt into the more versatile RF-8Gs. The new version had ventral fins for increased stability, a different cockpit, a hard-point wing for external pylon, and improved electrical, camera and navigation systems.

Photographic detachments played an active role in the Korean War. VC-61

compiled an impressive record. In 1952, Lt. Charles Hooper became the first Navy pilot to complete 100 photographic missions over Korea. Flying from USS *Valley Forge* in an F2F-2P *Banshee*, Hooper earned the ready-room title of "The Glass-Eyed Spy of the Valley Forge."

Later, Lt. Elroy Schafer hit on an idea that made it possible to cycle aerial camera film in a record time of one second between exposures.

Lt. Harlan Williams developed the image-motion compensator which made high-speed reconnaissance photography practical at any altitude. The device, at one time nicknamed the "Willie Wiggler," moved the aerial camera opposite the direction of flight the instant the film was exposed, to compensate for the forward motion of the aircraft, thus increasing the detail and sharpness of the aerial photographic images.

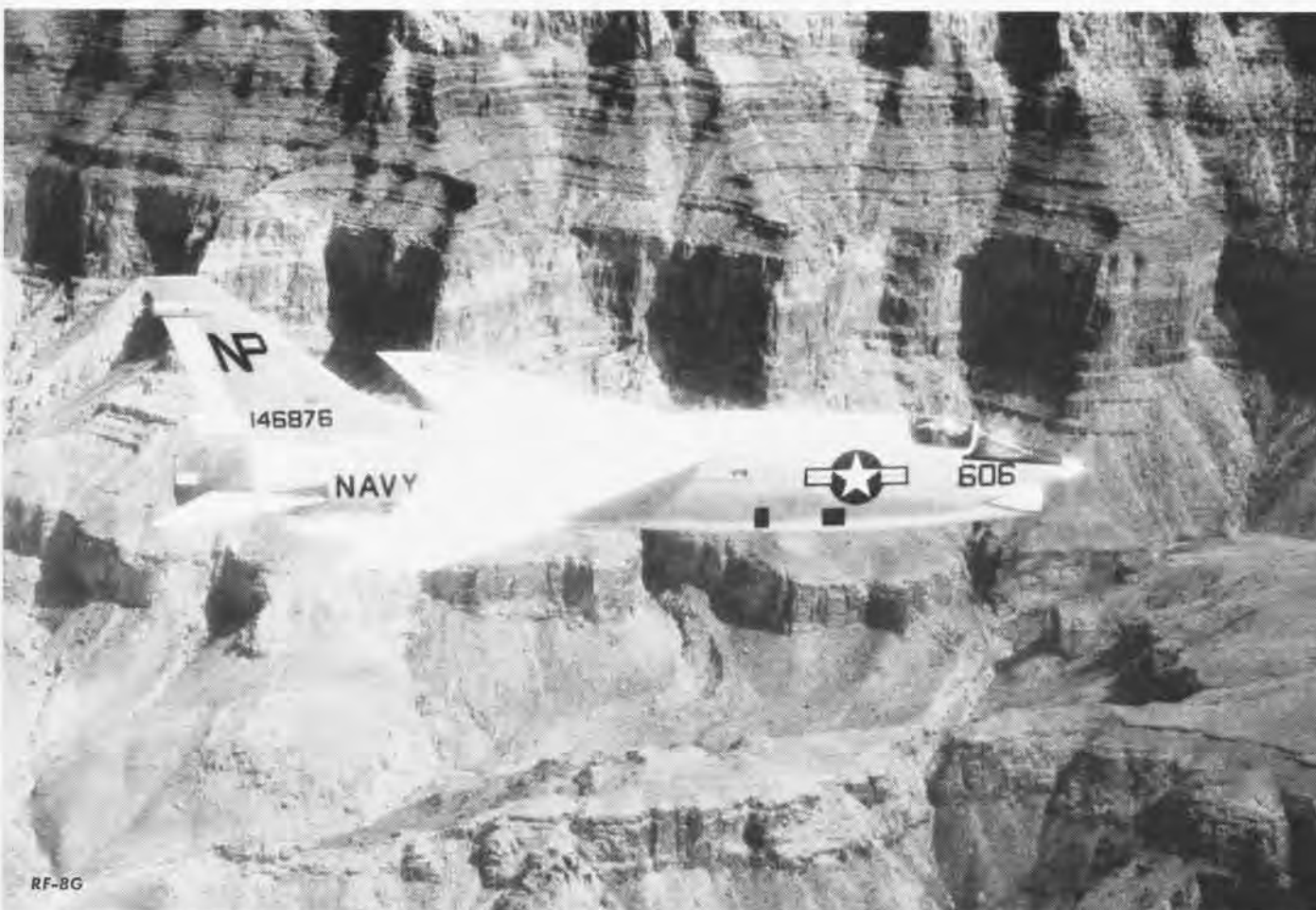
The performance of VFP-63 and its

detachments in Southeast Asia was outstanding despite a combat casualty rate that was three times greater than the overall Navy carrier rate.

In 1964, when the first reconnaissance missions were flown over the area, VFP-63 was there and, until 1972, had a photo detachment deployed continuously.

Commander Collins Haines, flying from USS *Bon Homme Richard* in 1967, was shot down over North Vietnam and was a POW until 1973. (Within a year after his release and return to the United States, he became the 24th skipper of VFP-63.)

The RF-8G pilots actually had no defense against the enemy other than the speed and maneuverability of the *Crusaders*. Often, they flew straight and level to take pictures, making them very vulnerable to ground fire. It was not uncommon for an RF-8G to approach a photo target and have the sky blacken from the shells of anti-



F9F-8Ps of VCP-63.



A3D-2Ps of VCP-63 (VFP-63), 1960.



aircraft guns. Many times the *Crusaders* flew through dense flak to obtain specified target reconnaissance. VFP-63 lost 20 aircraft. Five pilots were captured and seven were killed in action.

The end of the war left VFP-63 personnel with memories they won't forget. For example, there was Capt. Jim Morgan, USAF exchange pilot, who flew 166 missions in two years, with Det Three. And there was the Det Three RF-8G that was flown on 35 sorties in 35 days until grounded for a hydraulic leak.

In September 1972, VFP-63 assumed the responsibility for all F-8 replacement air group training, training pilots and maintenance personnel for all F-8 squadrons and supplying photo pilots and personnel for the detachments. The squadron operated F-8Js for fighter pilot training and RF-8Gs in an operational and training status. In July 1975, the fighter pilot program was disestablished and the squadron continued with photo reconnaissance alone.

Today the role of the squadron is as demanding as ever. In addition to furnishing reconnaissance intelligence to the fleet, VFP-63 also provides photographic support to other federal agencies, including the Army Engineers, the Air Force, the National Aeronautics and Space Administration, Treasury, and Coast Guard.

These support projects indicate how versatile the squadron is. VFP-63 *Crusaders* have flown over the national forests of the western United States, taking infrared and black and white photographs which assist the Forest Service in detecting disease in trees.

When Emperor Hirohito of Japan visited San Diego, the squadron took aerial photographs of the emperor's planned route through the city for the Secret Service which was looking for security trouble spots.

The squadron provides photos of all target ranges in California and Arizona and reconnaissance photos and mosaics for training purposes for Navy, Army, Air Force and Marine Corps service schools.

VFP-63 has provided aerial photography to assist federal authorities in searches involving a kidnap case and a crashed civilian aircraft. Squadron aerial photos of the United States-Mexican border have proven useful to border authorities.

And VFP-63's aerial photographic reconnaissance, proven valuable over the years, will continue to be important. Eighty-five percent of the information gathered against the Axis powers during WW II was accumulated by aerial photographic recon-

naissance. During the Korean War, the figures rose to 90-95 percent. Photo-Crusaders from VFP-62 recorded the Russian missile buildup in Cuba during 1962 and helped record the story of Southeast Asia with aerial photos.

The 20-year-old *Crusader* will most likely continue as the Navy's reconnaissance workhorse until 1980. VFP-63 will probably be involved in the introduction of its successor.

Light Photographic Squadron 63 continues to be the "Eyes of the Fleet."

Two One Five

Bureau number 149215," said the voice from the air traffic control tower, "switch to departure control. Monitor guard. You are cleared for takeoff."

"Roger, switching, squawking, rolling," replies Lt. Frank "Chip" Meyers, VFP-63, as he releases the brakes of the F-8J. With its engine at full power, the *Crusader* begins rolling down runway 24-left at NAS Miramar. Seconds later, Lt. Meyers lights the afterburner.

Bam! The *Crusader* quickly gathers ground speed until it reaches a lift-off speed of 172 miles per hour. Its nose lifts up and the landing gear leaves the runway. Up, up it goes, the afterburner flame a bright beacon in the mid-morning light. The engine's thunder reverberates through the Miramar hangars. The F-8J is gone.

It was May 19, 1976, and the last

Navy F-8J *Crusader* was on its way to Davis Monthan Air Force Base boneyard for storage.

When it took off, the plane still bore the markings of Miramar-based VF-211, although the squadron had transitioned from the F-8Js to F-14 *Tomcats* more than seven months before.

The *Crusader* was dirty, unwashed; its paint peeling in spots, fading in others. And it was old. Two One Five had 14 years of Navy service and 3,707 flight hours—not bad for an airframe designed for a 2,000-flight-hour lifetime. Delivered to the Navy in 1962 as an E model, it was converted to a J in 1969.

As the years went by, Buno 149215 wound up in one of the Navy's last Gunfighter squadrons, VF-211. In September 1975 it touched down on

the Miramar runway for the last time. Then it was turned over to VFP-63 for repairs before it could fly to Davis Monthan.

The repair work wasn't supposed to take long, but old 215 stayed on the deck for seven months! It was almost as if it didn't want to retire.

LCdr. Fred "Skip" Leonard, VF-211 safety officer, was the last to fly 215 before it was turned over to VFP-63. He flew his first F-8 in 1968 and accumulated 1,000 hours in RF-8Gs—and made 100 missions over North Vietnam with VFP-63 in 1972. He has another 1,000 hours in F-8Js. Leonard recorded his 2,000th F-8 flight hour in 215 aboard *Hancock* while with VF-211.

Two One Five, the last of the fighting *Crusaders*, is taking it easy, basking in the desert sun.





In 1958, John W. Kritsinger became the first second lieutenant in the Marine Corps to fly the F-8. In April 1976, now reserve Lt. Col. Kritsinger is thought to be the last Marine to fly the *Crusader*. Kritsinger, a civilian Continental Airlines pilot, commanded the last Marine squadron to operate the aircraft, VMF(AW)-112, until December 1975 when the squadron was redesignated VMFA-112 and transitioned to the F-4. Three Navy squadrons still fly the F-8 as a photo-recon aircraft.

MGySgt. James N. Scott, right center, displays a painting that depicts him shooting down a Mig-15 during the Korean War. Mrs. Rosemary E. Lingenfetter, right, was commissioned by MATCU-65, now MATCU-33, to recreate the 1953 action for Scott's retirement after 33 years' service. While in Korea, Scott was credited with the Mig kill while serving as an



airborne intercept operator in an F3D. He was awarded the Distinguished Flying Cross for that action. Pictured are Scott's wife, Ruri, left; Capt. G. K. Manary, MATCU-33 commanding officer; and Scott's daughter, Barbara. Scott is still flying as a commercial pilot and certified flight and instrument instructor in Yuma.

Lexington has been the scene recently for everything from the filming of the motion picture "Midway" to the marriage ceremony of its damage control assistant. LCdr. L. L. Stewart, ship's chaplain, performed the wedding ceremony for LCdr. R. F. Anderson and Miss L. C. Evans.

HS-4 *Black Knights* from *Ranger* participated in the evacuation of refugees from the flood-ravaged areas of Central and Northern Luzon, Republic of the Philippines, after typhoon *Olga* almost totally destroyed the countryside. Farmlands around Manila flooded up to 17 feet, stranding families for days. For those families who refused to leave their land, airlift missions were their only source of food and medical supplies.

More than 160 Japanese Boy Scouts, Cub Scouts, their leaders and families recently toured *Midway* in Yokosuka, the ship's home base since October 1973.

During the last two weeks in April, 16 naval air squadrons were aboard *Nimitz* preparing replacement pilots, requalifying instructors from various training squadrons and providing carquals for various reserve units. Aircraft included *Skyhawks*, *Phantoms*, *Skywarriors* and *Vikings*.

NWC China Lake, has a new \$3.46 million laboratory devoted to laser and other optical research and development projects. It is named after Dr. Charles C. Lauritsen, a pioneer in nuclear physics and rocket research.

After 23 years, MATCU-65 has been retired and MATCU-33, under control of MATC-38, El Toro, established. Its service in air traffic control is basically the same.

HS-9 was established June 4 under ComHSWing One at NAS Jacksonville. Under the leadership of Cdr. R. L. Dalton, the *Sea Griffins'* primary mission is to conduct all-weather, multi-sensor, air antisubmarine operations with its SH-3Hs. The new squadron's mission is basically the same as that of its namesake which was an operational squadron from June 1956 to October 1968.

Records:

Cdr. R. L. Larson, pilot, and LCdr. L. L. Hofsetter, tactical navigator of RVAH-1, NAS Key West, made the 162,000th arrested landing aboard *Enterprise* in an RA-5C.

Ens. R. D. Baker, VT-23, Kingsville, made the 360,000th arrested landing aboard *Lexington* while carrier qualifying in a T-2.

CWO Don Diederich, a bombardier/navigator instructor with VMA(AW)-332, has flown 2,000 hours in the A-6. Record hour was counted while the outfit was deployed to NAS Fallon.

Cdr. Bob Brennock's *Bluehawks* of VA-72, aboard *Kennedy*, have completed 23,000 accident-free flight hours.

VR-1, led by Capt. T. G. Higgins, has received its 10th consecutive aviation safety award for a total of 130,000 accident-free flight hours.

RVAH-6 has completed its 5,000th FOD-free flight hour.

VMA-223 has surpassed 25,000 accident-free flight hours.

VA-304 received the MUC for the period November 1, 1973, to November 30, 1975, for "pursuing goals of maximum readiness and excellence in all phases of operation. . . ."

Cdr. M. Munsinger, C.O. of the VA-113 *Stingers*, has completed 3,000 hours in the A-7. He counted the record hour aboard *Ranger* in WestPac. He has flown all Navy models of the *Corsair II* — A-7A/B/C and E. He has more than 1,000 arrested landings. According to a Vought Corporation release, Cdr. Munsinger is the first 3,000-hour A-7 pilot.

VP-44, commanded by Cdr. J. Siembieda, received a perfect score on its recent Naval Technical Proficiency Inspection. The *Golden Pelicans* are the first squadron in ComPatWingsLant to do so in three years.

Changes of command:

VP-94, Belle Chasse: Cdr. M. R. Marler relieved Capt. R. N. Lyall.

VS-37, North Island: Cdr. B. D. Nordwall relieved Cdr. B. C. Marshall.

MAG-13, El Toro: Col. C. F. Bergstrom, Jr., relieved Col. J. S. Rosenthal.

VAQ-136, Whidbey Island: Cdr. K. L. Carlsen relieved Cdr. D. L. Dietz.

VP-93, under the command of Reserve Patrol Wings, Atlantic, was commissioned



at NAF Detroit in July. Flying the P-3A, the reservists will augment Atlantic Fleet ASW patrol forces.

The Middlebury, Ind., owner of this rebuilt Grumman J4F-2 *Widgeon* amphibian became a real sea service booster after his son enlisted in the Navy. He affixed Navy seals and Fly Navy stickers to his craft. J. L. Rogers, owner, and HT1 D. G. Phelps, recruiter, are shown here with the *Widgeon* now powered by two Lycoming G-480, 270-hp engines. It has modernized avionics. The *Widgeon* is one of 135 built for the Navy in the 1940s.



VP Sigonella Style

Story and Photos by
PHC A. A. Clemons

Mobility and striking power are the watchwords of today's Navy, particularly for units serving in the Mediterranean Sea.

One outfit sharing responsibility for a continuous readiness posture there is Patrol Squadron Sigonella operating from Naval Air Facility, Sigonella, Sicily. This VP position is a rotating billet which is filled by East Coast patrol squadrons deployed for five-month periods.

Under operational control of Commander, Task Force 67, Naples, the patrol squadron's mission includes the detection and tracking of Soviet submarines, surface warships and associ-



ated support vessels in the Mediterranean.

The area patrolled by the unit extends from Sardinia eastward to the Suez Canal and covers 525,000 square miles, an area roughly twice the size of Texas. (The expanse from Sardinia west to Gibraltar is patrolled by Patrol Squadron Rota.)

Serving at Sigonella until early June was VP-24 home-ported in Jacksonville, Fla. Under the leadership of Commander Frank Gallo, VP-24 consists of 300 enlisted men, 70 officers, and nine P-3C *Orions*.

While deployed, squadron personnel work six days a week on 12-hour shifts around the clock. "In addition to our routine patrols," says Cdr. Gallo, "we maintained at least one aircraft and an 11-man crew on one-hour alert

every day." He added that a routine patrol lasts 10-12 hours and that each of the 12 flight crews averages over 100 hours per month.

The *Orion* is a prime member of the antisubmarine warfare team because of its range and sophisticated detection equipment. The computerized aircraft enables the crew to spend more time on tactical decisions as opposed to manual operations. P-3 weapons capability includes torpedoes, bombs, mines and the air-to-surface *Bullpup*.

The sharply increased presence of Soviet naval vessels in the Mediterranean has intensified the role of Sigonella over the past few years. While at Sigonella, VP-24 helped maintain the balance of power in the Mediterranean. Currently, VP-16 is filling the Patrol Squadron Sigonella slot.



P-3C flies over Messina, Sicily. At left is a sunrise hangar scene at Sigonella.



Cdr. Gallo discusses role of squadron at Sigonella, above. Below, AW3 A. T. Alfano inventories squadron sonobuoys.





Naval Aviation has many enduring insignias: Felix the cat, a top hat, a screaming eagle and other emblems from the Twenties and Thirties. Most of them have belonged to a succession of units bearing different numbers and missions. The *Sundowners* of VF-111, however, have used essentially the same insignia for nearly 35 years.

The *Sundowners* began their career at NAS North Island in August 1942 as VF-11, under the command of LCdr. Charles R. Fenton. The nucleus of the new squadron consisted in part of displaced fighter pilots from USS *Yorktown* (CV-5), sunk in the Battle of Midway in June. Air Group 11 was commissioned October 10, 1942, and VF-11 deployed with it to NAS Maui, Hawaii. During the deployment, Lt. Bill Leonard (now a rear admiral, retired), Ltjg. Charles R. Stimpson and several others decided that VF-11 should have a squadron insignia. "We liked the idea of an old nautical appellation and its significance in the suppression of the Japanese rising sun," Leonard recalls. And so they devised two Grumman *Wildcats* shooting a rising sun into the ocean. Numerals were not allowed on insignia for security reasons and so the word *Sundowners* was printed along the bottom.

"We picked the name *Sundowners* for two reasons," says RAdm. Leon-



PHCS(AC) Lawson

ard. "First, we fancied ourselves able to down the Japanese sun of destiny, or Japanese sons borne on aircraft wings or wherever encountered. Secondly, sundowner is a nautical term that goes back generations. The original nautical sundowner was a captain who would not permit the daily issue of grog until the sun had set. Long after spirits were banned in the U.S. Navy, sundowner was still a term used to identify a strict, hardworking ship or command."

LCdr. Fenton approved the insignia and authorized painting the new emblem on VF-11's *Wildcats*.

When VF-11 departed Hawaii in February 1943, LCdr. Clarence M. White relieved LCdr. Fenton. He led the *Sundowners* onto Guadalcanal's

Fighter Strip One on April 26, 1943. But VF-11 didn't have a chance to live up to its name until June 7, when three Japanese *Zeros* were shot down. The next few weeks were exceedingly active as enemy fighters and dive bombers attacked Allied shipping in the waters around Guadalcanal.

VF-11 was withdrawn from combat in July 1943 and it was not until October 1944 that the *Sundowners* returned, flying from USS *Hornet* (CV-12). Security measures had tightened and, during the *Hornet* tour which ended in January 1945, the squadron's F6F *Hellcats* did not sport the *Sundowner* emblem.

The F4Fs disappeared from the insignia shortly after VF-11 entered the jet age. The squadron was redesigna-

By Barrett Tillman



ted VF-111 in 1948. It began flying F9F-2 *Panthers* in 1950, the year the unit started the first of three Korean War tours. To mark the transition from props to jets, the *Wildcats* were replaced in the insignia by *Panthers*. The *Sundowners* subsequently flew later versions of the F9F, then FJ *Furys*, F11F *Tigers* and F8U *Crusaders*. As time went on, a growing awareness of the squadron's traditions prompted the return of the *Wildcats* in the insignia. In some renditions, the aircraft only vaguely resembled F4Fs, but at least they were unmistakably prop-driven instead of jet-propelled.

The *Sundowners* went to war for the third time when VF-111 *Crusaders* began flying missions against North Vietnam in 1964, the first of seven

Vietnam deployments. During this period the final change to the squadron insignia appeared. The Latin phrase *Illegitimus non carborundum* was added below the word *Sundowners*. It is loosely (and politely) translated "Don't let the so-and-so's grind you down."

The story of VF-111 insignia would not be complete without mention of *Omar* the mascot. The triangular, 11-stick figure was adopted "officially" in 1962. He established a reputation for all manner of devilry, usually at the expense of other squadrons. By tradition, the *Sundowner* with the longest service in the squadron is known as *Omar*. And so, the *Wildcats* and their sidekick, *Omar*, perpetuate the memory of the first-generation *Sundowners*.





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