NAVAL AVIATION
NEWS

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NAVAL AVIATION NEWS

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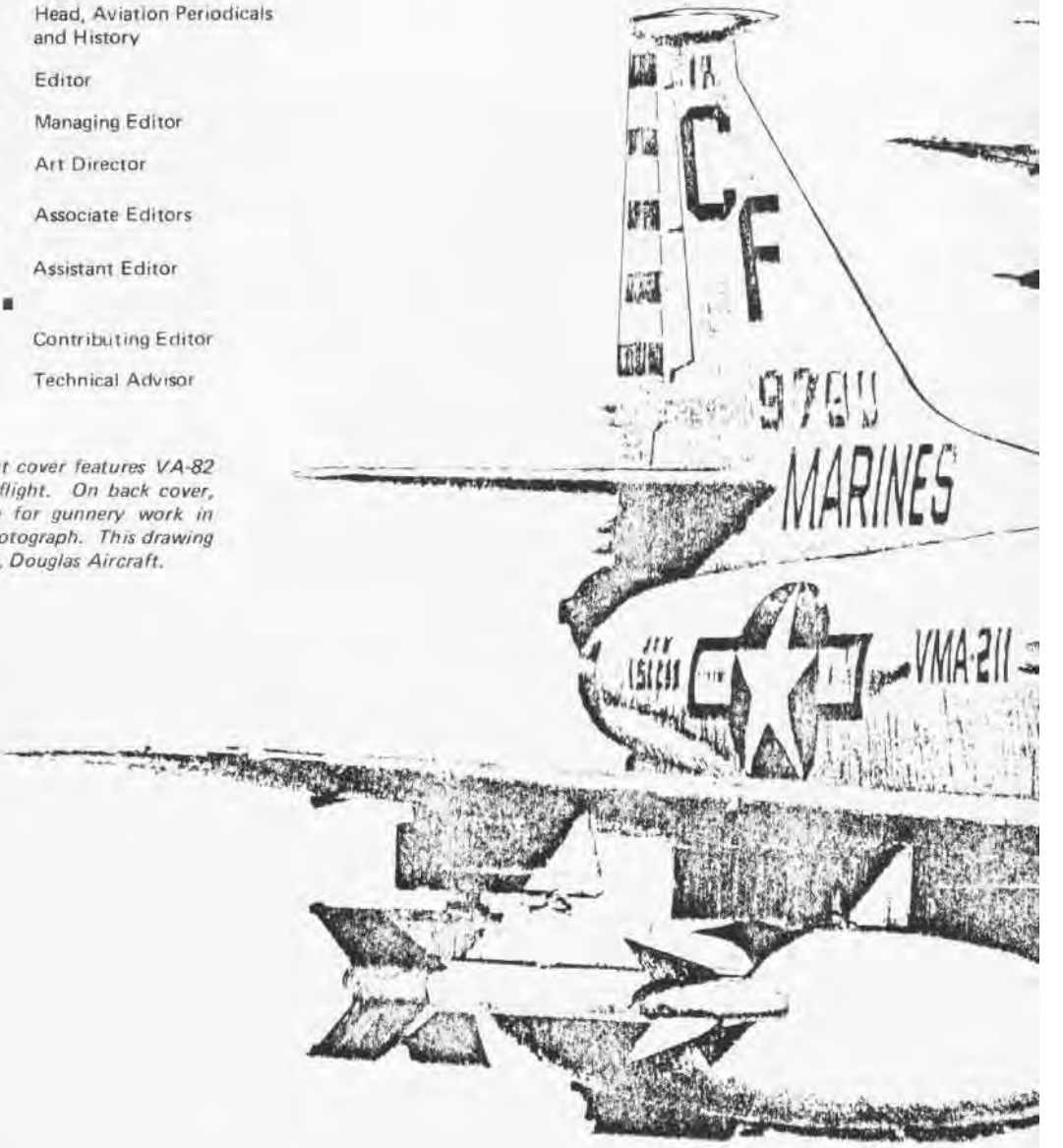
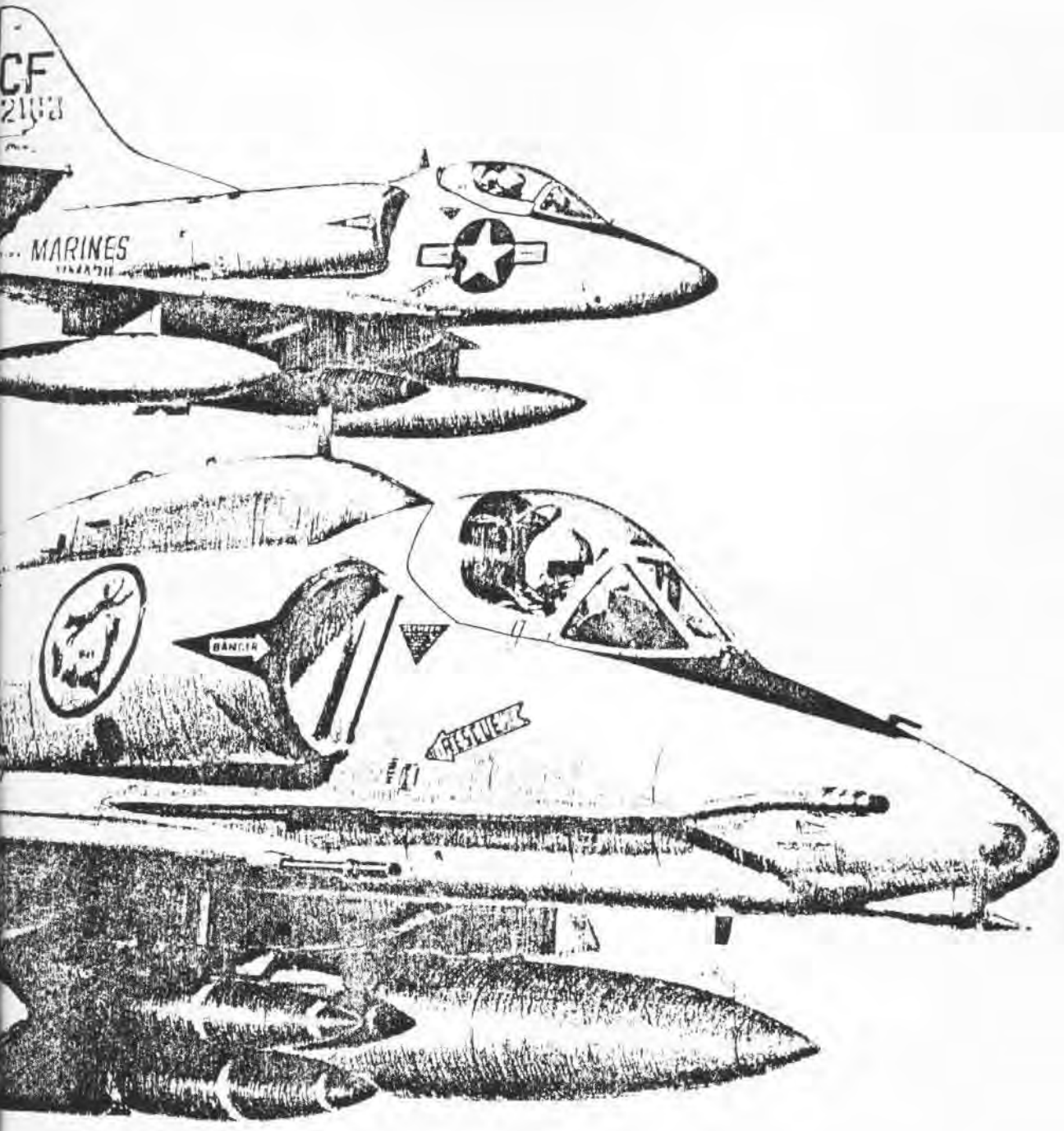
COVERS — Front cover features VA-82 A-7E Corsair in flight. On back cover, crewmen prepare for gunnery work in WW II-vintage photograph. This drawing is by R. G. Smith, Douglas Aircraft.



September 9,1977,marks the 20th anniversary of VMA-211's association with Douglas A-4 Skyhawks. "The Wake Island Avengers" were first equipped with A-4Bs — they were the first squadron to receive them — and later deployed with A-4As. Eventually they flew A-4Cs and A-4Es. Now flying A-4Ms, VMA-211 is assigned to Marine Air Group 13 within the Third Marine Air Wing at MCAS El Toro, Calif.


CF
MARINES
BANSHEE

editor's corner

But at my back I always hear
Time's winged chariot hurrying near;
And yonder all before us lie
Deserts of vast eternity.

Andrew Marvell

Flying piggyback didn't begin with NASA's space shuttle orbiter and its mighty companion, the 747 jet. Although *Enterprise's* success is testimony to man's adventuresome and continuing pursuit of knowledge, it had predecessors – not so sophisticated by any means, but certainly impressive.

The British developed the Short-Mayo composite as a means of getting a heavily-loaded seaplane in the air. The mother ship, *Maia*, carried a smaller seaplane, *Mercury*. Their first separation flight occurred on February 6, 1938. The pair made many flights together including a record-setting hop during which *Mercury* detached from *Maia* and traveled from Dundee, Scotland, to the Orange River in South Africa – a 5,997-mile seaplane distance record which still stands.

The planes were operating between Southhampton and Alexandria, Egypt, when WW II broke out. *Mercury* was scrapped in 1941 after serving with a Dutch seaplane squadron attached to the Royal Air Force. The Luftwaffe found *Maia* in an English harbor on May 11, 1941, and destroyed her with bombs.

The Luftwaffe used composites during the Allied invasion of France in the summer of 1944. For some reason, the Germans dubbed the program the *Beethoven-Gerat* (Beethoven device). It was later changed to *Mistel*, or mistletoe.

Usually, a *Mistel* flight consisted of an unmanned Junker 88 loaded with explosives and a Messerschmitt 109 or Focke-Wulf 190 mounted on a pylon. The fighter pilot would fly the combination toward a target, cut loose from the bomb-laden bird and hope to fly away before the 88 impacted.

About 150 *Mistel* combinations were built but 125 Junker-88 lower segments were captured intact when Nordhausen fell to the Allies. The Germans also experimented with launching DFS 230 assault gliders from fighters used as ferry planes.

The French tried flying piggyback after the war. They sought a way of getting the Leduc 010, mounted on a transport-type aircraft, up to a speed where its ram-jet engine would function. The prototype 010's first flight was October 21, 1947. Both prototypes were destroyed in early tests but a follow-on Leduc 016, fitted with two conventional jet engines, made 83 flights. The program was abandoned in the 1950s because of lack of support.

NAVAL AVIATION NEWS did you know?

Aerospace History Chair

The Charles A. Lindbergh Chair of Aerospace History has been established at the National Air and Space Museum of the Smithsonian Institution, Washington, D.C. The endowed chair is a step toward the museum's goal of becoming a center for the study of the history of flight. The first occupant, for the year beginning January 1, 1978, will be Charles Howard Gibbs-Smith, aerospace historian and keeper emeritus of the Victoria and Albert Museum in London.

The endowed chair was announced in May during a symposium commemorating the 50th anniversary of Lindbergh's flight.

Logistics Training

Selected prospective squadron commanding and executive officers en route to operational squadrons, beginning in FY 78, will receive training in aviation supply and maintenance material management. An overview of logistic management fundamentals to improve aircraft readiness will be presented. The three-week course at the Navy Supply Corps School, Athens, Ga., will provide valuable instruction in aviation maintenance and supply fundamentals with emphasis on problem solving.

The program will be expanded in FY 79 to include all prospective squadron commanding and executive officers.

X-Wing Concept

An engineer at the David W. Taylor Naval Ship R&D Center, Carderock, Md., adjusts the streamlined hull fairing on a model of an X-wing aircraft. This concept involves a stoppable rotor/wing which allows the aircraft to take off and land vertically and cruise at transonic speeds. The rotor/wing has air blowing along slots the length of the blades which gives circulation control. The model represents a one-quarter scale version of a one-man flight demonstrator aircraft.

NAVAL AVIATION NEWS did you know?

Paris Air Show

Two of the aircraft representing the U.S. Navy at the 32nd Paris Air Show this year were E-2C *Hawkeyes,* equipped with the advanced radar processing system. One plane came from RVAW-120 at Norfolk, Va., with LCdr. George Kickhofel and Lt. Rick Weidman as pilots, and Lt. Steve Wesseljoff along with John Koszeghy and Sal Vezzi, both from Grumman Aerospace Corporation, as crew members. The other aircraft, designated for assignment to VAW-121, also at Norfolk, was flown by pilots LCdr. Mac Johnston, NavPro Bethpage, and Ltjg. Lou Taylor, VAW-121, with crewmen ATC Charlie Otto, NavPro; Paul Coco and Joe Ruggiano, Grumman.

The aircraft flew north on May 28 from Bethpage, N.Y., to Goose Bay, Canada, for a refueling stop and then continued on to Sondrestrom, Greenland, where they remained overnight. They maintained 15 to 30 minutes' separation so that both radars could be fully utilized for navigational assistance as well as for gathering performance data en route.

E-2C capabilities were presented in several ways during the show. One of the

E-2Cs, *Hawkeye 101,* was placed in the static display near other U.S. military aircraft such as the F-16, the YF-17 (F-18 prototype), E-3A. *Hawkeye 100* flew twice daily. Johnston, Taylor and Otto flew a five-minute presentation of the aircraft's flight envelope each morning or afternoon. Kickhofel, Weidman and Coco flew a demonstration flight with representatives of NATO countries interested in the radar system. In addition, the radar information was data linked back to the *Hawkeye* van, a ground data link station, where other visitors were observing the flights.

NavStar GPS

Navigation Technology Satellite Two (NTS-2), Navy's second satellite for the NavStar Global Positioning System (GPS), was launched aboard an Air Force *Atlas F* at Vandenberg AFB, Calif., in June.

The NavStar system, which will become operational in the mid-1980s, is based on the Naval Research Laboratory's *Timation* research program and an Air Force project, both begun in the early 1960s. The idea was to prove that a system using a passive ranging technique, combined with highly accurate clocks, could provide the basis for a new and revolutionary navigation system with three-dimensional coverage (longitude, latitude and altitude) throughout the world. In 1973 the two efforts were merged to form the NavStar GPS program. NRL's *Timation III* was redesignated NTS-1 and launched in 1974 as the first satellite in the program. It is still functioning.

NTS-2 was injected into a 12-hour circular orbit some 11,000 nautical miles high at an inclination of 63 degrees. It has atomic clocks for precise time signals, accurate to one second in three million years, and the necessary equipment to provide GPS signals. Later this year, the Air Force will launch navigation development satellites to interface with NTS-2 in testing GPS's capabilities.

A joint-service program office has been established with deputy program managers from the Navy, Air Force, Army, Marine Corps and the Defense Mapping Service. When completed, the system will have 24 satellites (eight in each of three circular orbit planes) to provide ships, aircraft, ground troops and any other users navigation information 24 hours a day in any kind of weather – anywhere on earth.

NRL now has its third test satellite on the drawing board, which it expects to launch in 1981.

New Gray Eagle

Chief Warrant Officer Henry Wildfang, the Marine Corps' *Silver Hawk*, senior Marine Corps Aviator, for 1975 and 1976, became the new *Gray Eagle* on August 31. Retiring Rear Admiral George L. Cassell transferred the trophy to him in ceremonies at MCAS Cherry Point, N.C. The 30-year veteran pilot has flown over 23,000 accident-free hours. He is in his 36th year in the Marine Corps and is currently on duty – and still actively flying – with Marine Aerial Refueler/Transport Squadron 252 at Cherry Point (*NANews*, May 1977, p. 18).

A Light Touch

Aircraft hangars have long needed additional illumination. Now after three years of research, the Civil Engineering Laboratory (CEL), Naval Construction Battalion Center, Port Hueneme, Calif., has recommended that light-reflecting floor finishes of urethane be used for aircraft maintenance areas.

NAS Oceana, Va., initially posed the problem of improper lighting to the Naval Facilities Engineering Command, which asked CEL to cooperate with its Atlantic Field Division on the project. Dr. Robert Alumbaugh, senior CEL research chemist, was in charge, assisted by David Gurganus, RDT&E liaison officer for the field division.

An Oceana hangar was the first to be coated. This proved successful and a second hangar was coated. Subsequently, other naval air stations including Miramar, North Island and San Diego and a New Orleans reserve squadron had their hangars coated with urethane. The laboratory has also received inquiries from the Air Force and some major commercial airlines.

On a hangar deck, ambient or artificial light bounces off the floor into dark, shadowy areas beneath the wings and the fuselage of the aircraft. The obvious advantage of light-reflecting paint is that with increased illumination, eye strain and fatigue are lessened.

Dr. Alumbaugh says that measurements of reflected light under the wing of a plane parked on a standard, uncoated, concrete floor often show zero foot-candles or no meter readings. But readings taken underneath a plane on a white urethane-coated floor increase three to four, and occasionally as high as 20 foot-candles. The increased illumination often provides sufficient lighting for general maintenance work without the use of auxiliary lights, such as extension lights or flashlights. Alumbaugh points out that more reflected light and fewer light fixtures result in energy conservation. Greater visibility improves safety. "In fact, there have been no reported accidents at the naval air station hangar where we applied urethane to the floors three years ago."

Alumbaugh tells of one squadron where the personnel learned that the hangar floors were to be painted. They complained about the work needed to keep white decks clean. But their attitude soon changed. They now take such pride in their white floors that even though they have a motorized scrubber-sweeper, they frequently use the old-fashioned broom-squeegee method to clean the decks.

It costs about 75 cents per square foot to apply the urethane coating, including floor cleaning and preparation. It would cost about $64,000 to relamp the same hangar – and relamping would provide less illumination

Alumbaugh and Gurganus have co-authored a technical note, *Reflective Floor Finishes for Aircraft Maintenance Hangars* (TN No. N-1482). It is available by writing to Kathy Thompson, Secondary Distribution, Code L07, CEL, Naval Construction Battalion Center, Port Hueneme, Calif. 93043.

grampaw pettibone

Can Do

The crew of a CH-19E (HRS-3) was alerted for a rescue at their Southwest Pacific island base. They were told that a Navy nurse, while out sight-seeing, had slipped on moss-covered rocks and fallen over a waterfall in a remote and relatively inaccessible area and was unable to move her legs. There were no roads which were passable, even for a jeep. Owing to the extremely heavy jungle growth, a helo was the only logical answer to the rescue problem. The crew manned their aircraft, lifted off and flew directly to the scene.

The nearest clearing suitable for landing was one and one-half miles downstream of the accident site, and the dense jungle and sheer cliffs in the vicinity precluded hoisting the victim.

The resourceful helo pilot set it down in the clearing downstream and hiked back through the jungle to the waterfall, together with the doctor and corpsman who formed the rescue crew. They carried with them a Stokes litter and a one-man life raft.

The helpless accident victim was strapped in the litter, which was in turn strapped to the raft, and floated downstream guided by the helo crew, now doubling as swimmers, until the clearing utilized for landing the helo was reached.

The patient was then carried to the helo and flown to the naval hospital.

Grampaw Pettibone says:

Bust my buttons! It's good for the old blood pressure to read about a resourceful bunch like this helo Team! Even a helicopter has limitations and it's a sure sign of a pilot's professional proficiency when he backs off after due consideration of the situation and says No. This is sometimes the toughest of all decicions to make. (October 1963)

Rescue

A young airman, working in the hangar deck area of a big CVA, walked behind an RF-8A *Crusader* which was turning up with the tailpipe directed out the wide open No. 3 elevator ramp.

There was a great deal of racket in the hangar deck area and he was completely unaware of the bellowing engine in his path. As he stepped into the path of the jet blast, he was snatched up and hurled bodily through the opening and far out into the sea below!

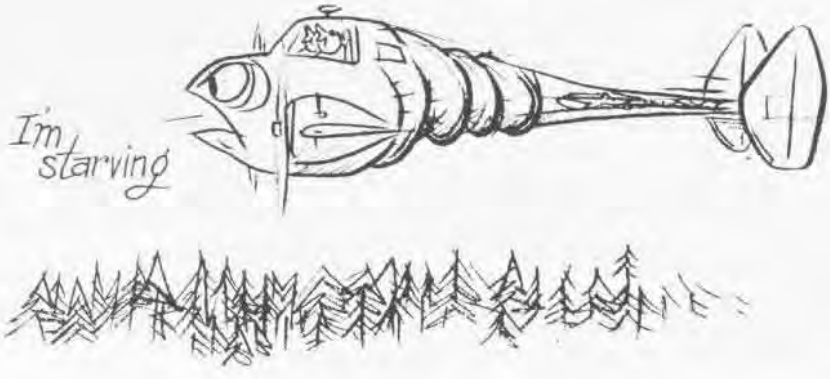
"Man Overboard" was sounded immediately. The plane guard helo, already hovering near the flight deck, came to the rescue and was over the thoroughly dunked victim in less than a minute.

The helo crewman quickly observed the obvious panic and near exhaustion of the man in the water and went down the cable into the water to help him, with the pilot's approval.

The man struggled violently with the rescue crewman, climbing on his back and dragging them both under time after time, finally getting what seemed almost a death grip on the rescue hoist cable itself. The rescue sling meanwhile became detached in the melee and floated away.

The helo crewman also grabbed the hoist cable with his Chicago Grip, a handy gadget, and hung below the panicky victim, helping him as much as possible as the pilot hoisted them both up.

Just as they reached the helo hatch,



ILLUSTRATED BY Osborn

the man lost his hold on the cable and tumbled back into the water, almost taking the helo crewman with him. The crewman was made of sterner stuff however and hung on. After he had safely clambered through the hatch back into the helicopter, he coolly lowered another sling to the frantically floundering man below and this time brought him safely aboard.

It had been what the plane guard men call "a complicated rescue."

Grampaw Pettibone says:

Holy smokes! I'll bet this airman shies away from jet tailpipes like they were coiled rattlers and will be standin' beers to this helo man at every port call. Sure wonder where the outside observers were during this engine turn-up. A little protection for day-dreamers who walk around in a daze is less effort than "Man Overboard" exercises like this one that take the concentrated efforts of a good part of the people on the ship.

Rescue demonstrations by the helos for all members of the ship's company can pay real dividends when the chips are down. This victim didn't know *beans* about rescue procedures! (July 1963)

Scan Breakdown

The helicopter crew was briefed to conduct a night targeting mission. The mission would be flown from the aft deck of a surface combatant and no communications (Zip-Lip) would be used between the aircraft and ship. The existing weather was marginal VFR with conditions lowering in rain showers.

Takeoff and climb to altitude went smoothly. Moments after descending to mission altitude, the number two generator caution light illuminated and the generator would not reset. The pilot subsequently decided to abort the mission due to the existing weather and the generator failure.

The aircraft returned to the ship, entered the landing pattern and completed the landing checklist, still maintaining strict radio silence as briefed. On the first approach, with the copilot calling altitude and airspeeds, the aircraft was too high and the pilot initiated a wave-off and set up for another approach. Two subsequent approach attempts were waved off and the pilot expressed concern about being able to get the aircraft aboard. The copilot flew the aircraft for a few moments, allowing the pilot an opportunity to rest. The pilot later reassumed control of the aircraft for the final approach. While the copilot was occupied looking outside, the pilot was busy flying the aircraft on instruments. Suddenly, the copilot noticed salt spray and immediately increased collective to maximum. The aircraft touched the water ½ mile short of the ship, got airborne momentarily, crashed and sank rapidly.

Grampaw Pettibone says:

Egads, lads! It appears the "culprit," vertigo, struck again! When things get wormy and vertigo becomes a problem, it's time to admit it, so your partner can back you up on the ole flight instruments. If an emergency situation occurs during practice Zip-Lip operations, it's time to un-zip and transmit.

My bet is that while on *that critical* final approach, both crew members were looking out the window and no one was minding the flight instruments. Good aeroplane crew coordination pays dividends.

Building the A-4

First A-4, 1954

By Commander Rosario Rausa

Photos by Chris Bogiagis,
McDonnell Douglas Corporation

From Rivets to Runway

It begins with a billboard-sized sheet of metal – the upper corners clipped, forming a broad A shape. More than 50 race-track pattern holes, each about eight inches long, are neatly machine punched-out in three rows across the wide A. Around each aperture, rivet holes are drilled and a series of self-sealing rivets are inserted. These become the first of more than 15,000 which will bind together successive sections of aluminum-alloy spars, longerons and a multitude of other components. There will be miles of electrical wiring, measured sums of sealant, great lengths of fuel, oil and hydraulic lines – and much more.

Nine months later it becomes an airplane, one of the finest ever conceived and realized by man. It becomes an A-4 *Skyhawk*.

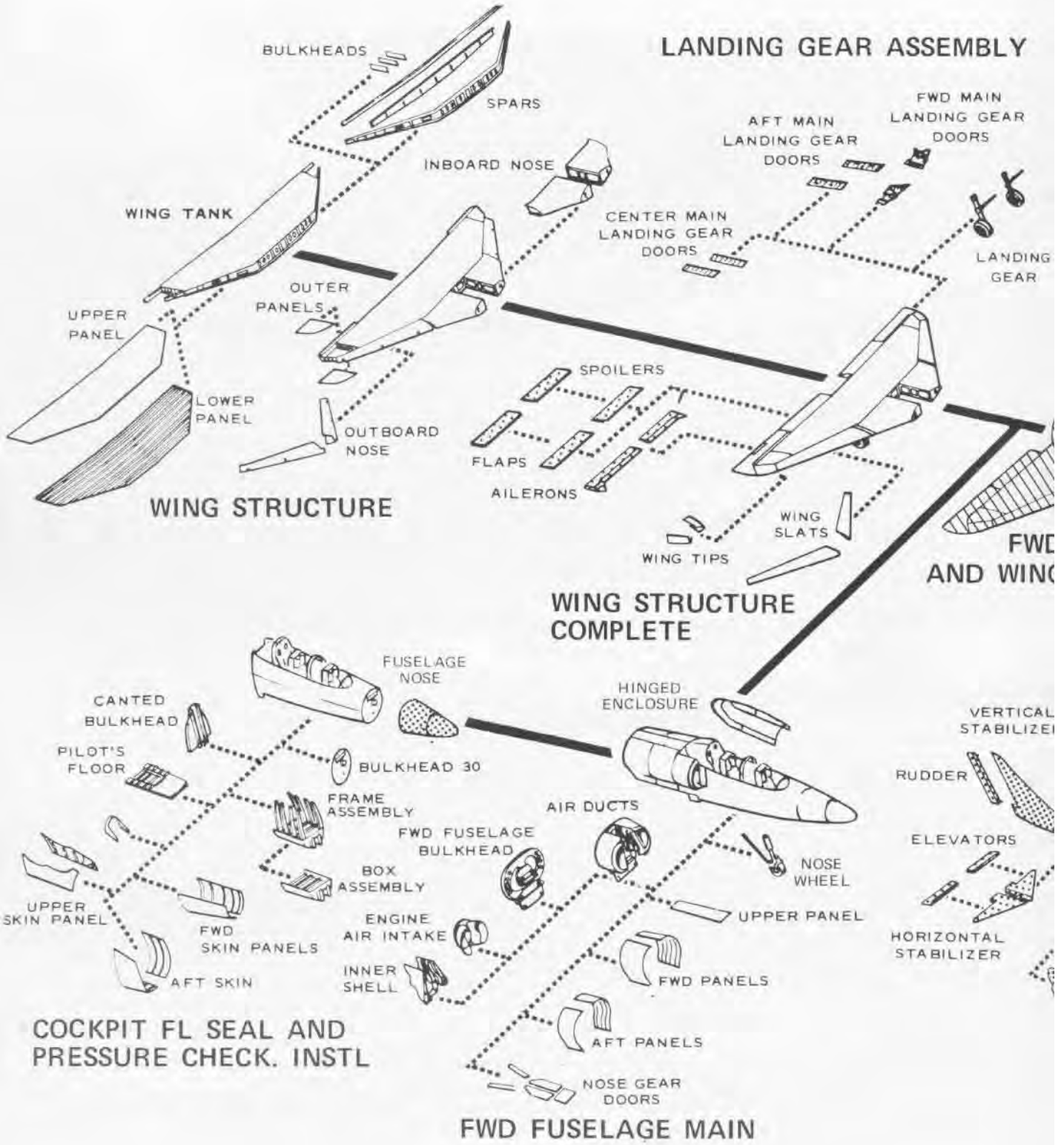
Ed Heinemann, the master of functional simplicity in aircraft design, fathered the A-4 – not to mention the SBD, the A-1, the A-3 and a score of other reputable flying machines. "We sought to simplify assembly line procedures with the *Skyhawk*," he recalls. "The A-1 *Skyraider* line, for example, had 21 different work stations, a complex, if not cumbersome, arrangement. So, we reduced the stations to a minimum, including a single, final assembly point."

The A-4 first flew in June 1954 and Douglas Aircraft, now a part of McDonnell Douglas Corporation, delivered the first production *Skyhawk* in October 1956 to the VA-72 *Skyhawks* from whom the A-4 got its name. Since then more than 2,900 of the tactical bombers have rolled off the assembly line in 21 different versions. The production rate today may seem like a trickle compared to wartime torrents – 20 to 25 a month – in the late 1960s. But A-4s are still familiar figures in aviation around the globe. In addition to U.S. Navy and Marine Corps units, today's *Skyhawks* wear the insignia of the air forces of Israel, Singapore, Argentina, Kuwait and New Zealand; and the Argentine and Royal Australian Navies. (See inside back cover.)

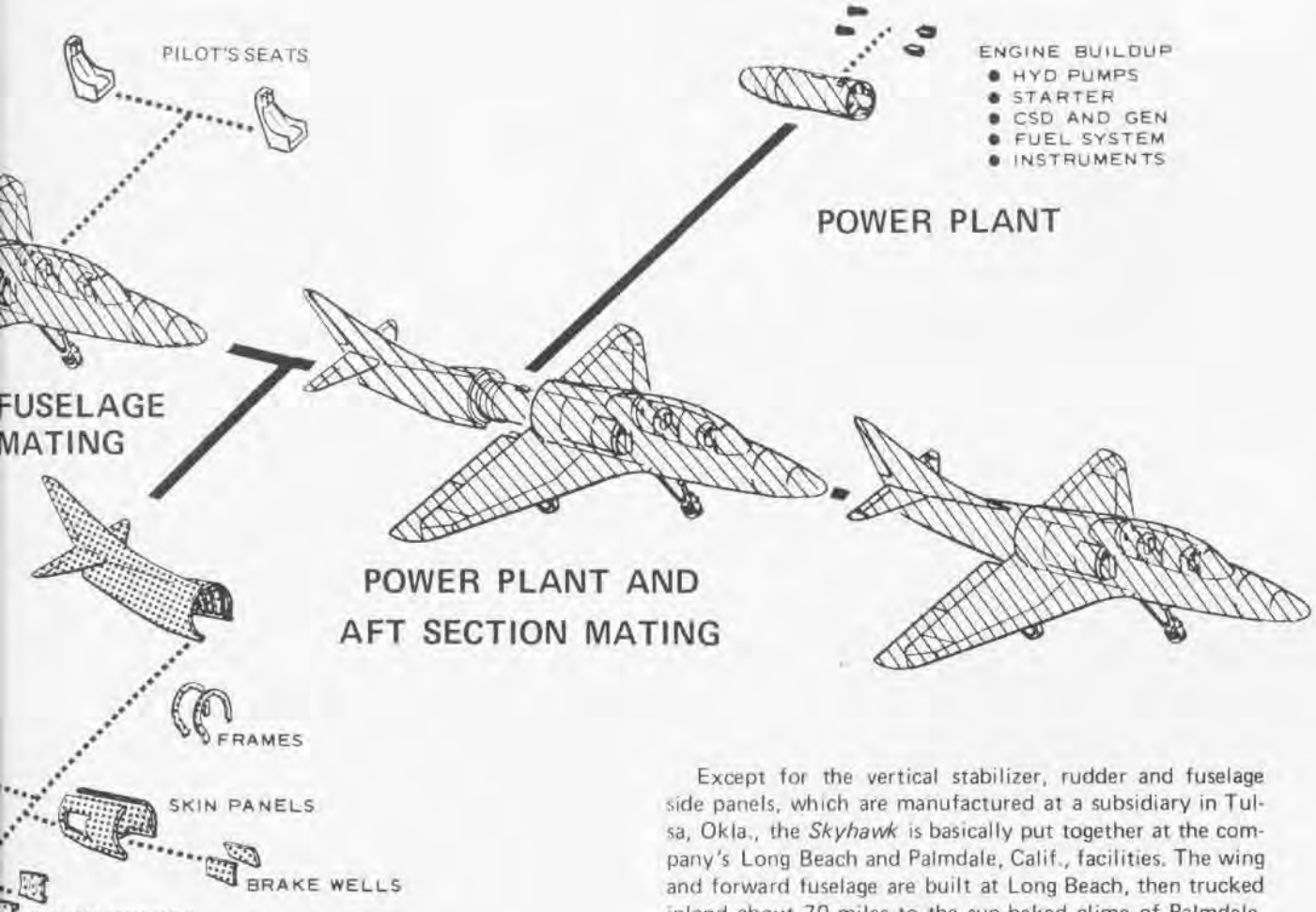
The A-4 has been called the *Scooter*, the *Tinker Toy* and *Heinemann's Hot Rod*. Colloquial nomenclature aside, an elemental truth prevails: The *Skyhawk* has enjoyed the longest continuous production run of any American military aircraft.

Many other companies contribute to the making of an A-4. Space precludes listing them. Indeed, the following is only a basic outline of what really is a complex endeavor – the building of an aircraft from rivets to runway.

Skyhawk


BULKHEADS
SPARS
WING TANK
INBOARD NOSE
OUTER PANELS
UPPER PANEL
LOWER PANEL
OUTBOARD NOSE
WING STRUCTURE
LANDING GEAR ASSEMBLY
FWD MAIN LANDING GEAR DOORS
AFT MAIN LANDING GEAR DOORS
CENTER MAIN LANDING GEAR DOORS
LANDING GEAR
SPOILERS
FLAPS
AILERONS
WING SLATS
WING TIPS
WING STRUCTURE COMPLETE
FWD AND WING
FUSELAGE NOSE
CANTED BULKHEAD
PILOT'S FLOOR
BULKHEAD 30
FRAME ASSEMBLY
BOX ASSEMBLY
UPPER SKIN PANEL
FWD SKIN PANELS
AFT SKIN
COCKPIT FL SEAL AND PRESSURE CHECK. INSTL
HINGED ENCLOSURE
AIR DUCTS
FWD FUSELAGE BULKHEAD
ENGINE AIR INTAKE
INNER SHELL
NOSE WHEEL
UPPER PANEL
FWD PANELS
AFT PANELS
NOSE GEAR DOORS
FWD FUSELAGE MAIN
VERTICAL STABILIZER
RUDDER
ELEVATORS
HORIZONTAL STABILIZER

Sequence



Except for the vertical stabilizer, rudder and fuselage side panels, which are manufactured at a subsidiary in Tulsa, Okla., the *Skyhawk* is basically put together at the company's Long Beach and Palmdale, Calif., facilities. The wing and forward fuselage are built at Long Beach, then trucked inland about 70 miles to the sun-baked clime of Palmdale. There the wing is mated to the fuselage sections and the cockpit, including ejection seat(s), is installed. Additionally, the main landing gear (the nose gear is incorporated at Long Beach), the Pratt & Whitney J-52 P-408A (for the A-4KU now being built) and, depending on the version, the avionics pod are installed. The plane is then ground checked, painted and flown. This chart depicts, in general terms, the assembly sequence.

The company's main A-4 assembly building at Long Beach is 1,562 feet long, 302 feet wide and 35 feet high. One end cannot be seen from the other, so huge is the space.

Building the A-4

The principal metal used is called Primary 70-75, an aluminum alloy. PR-1422 is the critical sealing compound. Since the *Skyhawk's* wing is, in effect, a fuel tank, the implications of a poor seal during manufacture are obvious.

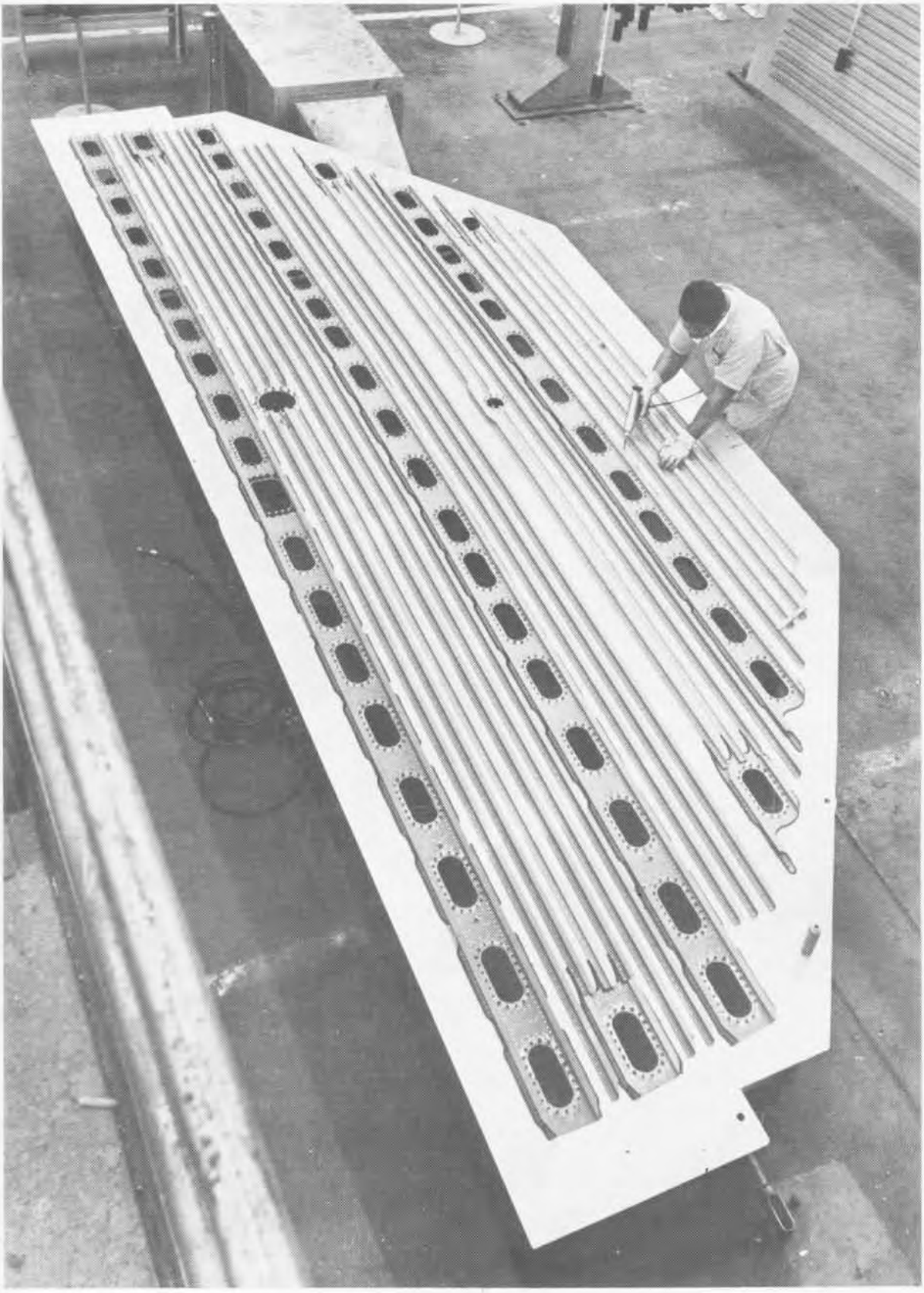
The race-track-shaped holes are access ports which could be opened for repair action during the plane's lifetime. After one slab of wing skin is reinforced with bulkheads, spars and longerons, it is hoisted to the vertical position by a bridge train. The other half of the A is then connected, creating the integral wing.

In increments, as components are attached, the structure has become a composite, gathering strength and rigidity. A TV camera enables technicians to monitor the self-sealing action of rivets as they are pressed into the metal surface.

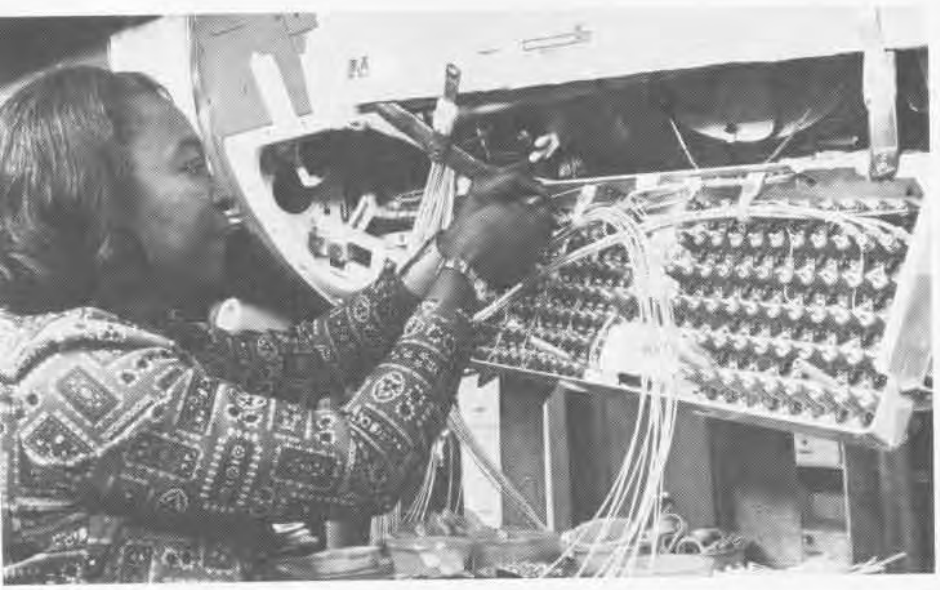
Sealing compound is quick-cured in the wing by a heavy duty heater. Although the sealant never completely hardens, it is firmly affixed. The wing is then liberally coated with a liquid soap mixture and six pounds per square inch of air pressure applied.

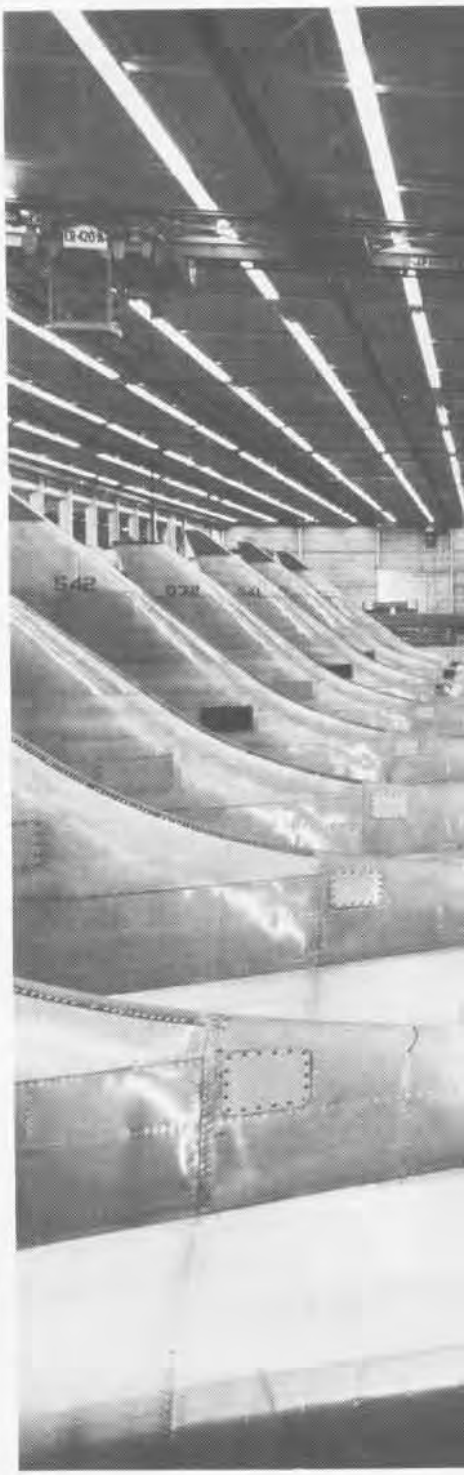
Any bubble-up area reveals a leak, much like the process used in detecting a miniscule opening in a flat tire.

After this, the wing goes outside to a satellite enclosure where 200 gallons of additional sealant compound are pumped into it. Suspended in a framework, it is rotated 360 degrees many times, like a chicken on a spit. This slosh action thoroughly coats the interior with the sealant. The excess is drained away and the wing is returned.



Building the A-4





Fuel transfer and gauge systems are partially installed followed by the aerodynamically tapered wing leading edges. These are attached, like the wing tips, outboard of the tank boundary and are not part of the "wet" wing.

Douglas aircraft assemblers, as the technicians are called, must progress through a demanding training and apprenticeship program, often requiring years of labor and study. Their personal inspection stamps are enscribed in key areas as a sort of quality control signature of their work.

Integrating electrical wires into the forward fuselage section, rigging harnesses and fuse panels are but a few of the finely detailed, laborious chores which the assemblers undertake. There are more than 9,000 termination points in the wiring complex, for example. FACT TWO, the Flexible Automatic Circuit Tester, is a computerized device which checks resistance, continuity and isolates electrical faults so that they can be repaired. About 50 squawks, or discrepancies, are discovered on the average plane, not a bad percentage compared to the number of circuits. This electrical test evolution usually takes a week per aircraft.

The nose wheel and strut are added about the time the elaborate wiring evolution is under way. A rectangular-shaped hole in the deck accommodates the drop check procedure.

After basic assembly of the cockpit, it is painted black and pressurized to check for leaks. The *Skyhawk* is about six months in the making at this point.

Vans transport the wing and forward fuselage from Long Beach to Palmdale where they will meet the remaining components. Off-loaded at one end of the line, these will move along accordingly over a period of three months.

On the second level of the Palmdale factory separate test and assembly activities occur for black box type gear like radios and navigation computers. Bomb-rack wiring harnesses, intricate in design, are put together upstairs. Life-size charts are used which allow the technician to place actual wires directly onto the route depicted on the diagram. Much of this topside gear is government furnished equipment which is carefully serviced before installation down below.

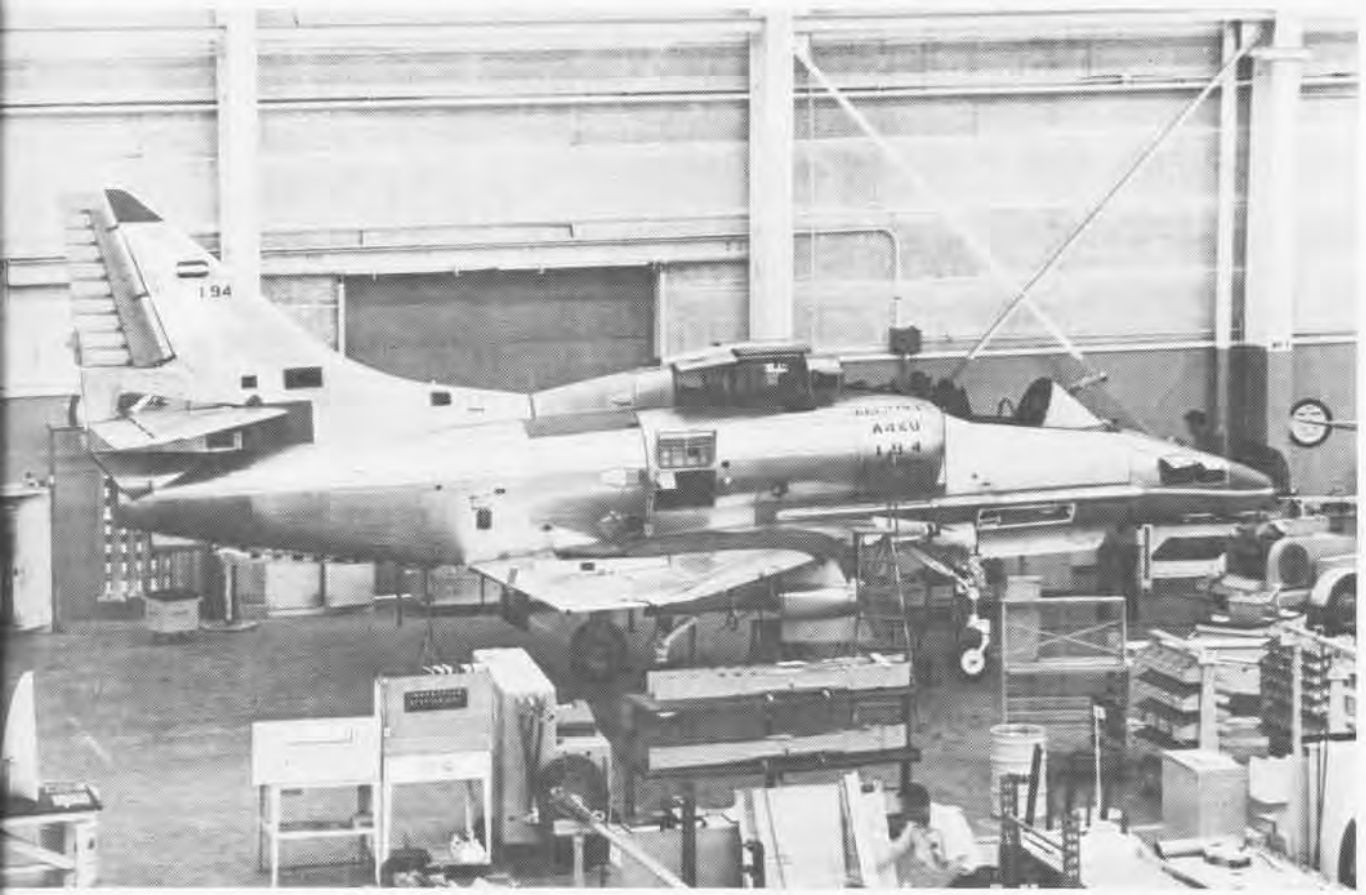
The cockpit is built up and the ejection seat lowered into the machine and secured. More plumbing and wiring coincide with this action. Flight controls, including spoilers, and ailerons are hinged to the main wing. The tail hook, refueling probe and guns are incorporated. The main landing gears go on and are drop-checked. Sub-assembly of the tail package is completed and the power plant is inserted. The A-4 assumes its familiar profile when the tail section is slid forward, enveloping the engine, as the forward portion of the aircraft is connected to the aft.

Before this stage, which marks the aircraft's entry into final assembly preparations, the wing is mounted on what is called, simply, a wing post. This post supports the wing,along with the two main landing gear, while the forward fuselage section is mated to it. In the photo, Harry Gann, Manager, Aircraft Information, Douglas Aircraft (and prominent aerial photographer who has contributed extensively to *Naval Aviation News*), examines the post with Doug Garber, Branch Manager at Palmdale. A basic support device, unpretentious to the eye but fortress-like in strength, the post shares a measure of the *Skyhawk* heritage. Every single A-4, from the very first one, has rested atop this same post on its way to the sky.

Building the A-4

These A-4KUs are the latest production aircraft, slated for the Kuwait Air Force. An engine is about to be installed in one which already wears the Kuwait camouflage paint scheme. It was undergoing some retrofit maintenance when the photo was taken. Normally, when the plane reaches the final assembly point, its skin is bare as in the A-4KU, below. Painting follows along with a battery of static ground tests.

About nine months from the beginning, when the A-4 was no more than separate stacks of metal, piles of rivets and an immense collection of different parts, it is ready to take to the sky and earn its wings.



These A-4s participated in a massive flyover at NAS Lemoore in 1972. Nearly 3,000 Skyhawks have been built since 1956. There have been 21 different versions of the tactical bomber whose longevity is unprecedented.

Does this man have

A lot of people think so. He may not look like Smilin' Jack and he may not suit the preferred image of a test pilot. But Jim Stegman is one. Behind that robust figure and cherubic countenance is a flyer whose log book credentials are abundant indeed. He's accumulated 7,000 hours, most of them in single engine aircraft. Earlier this year he logged his 3,200th A-4 hour.

A former enlisted pilot and Marine Aviator, he left the service in 1947, was recalled in 1952 and left again in 1955 to join Douglas. Except for peak periods during Vietnam when other pilots helped in testing production aircraft, Jim Stegman has flown most of the *Skyhawks* which proliferate around the world today. His job? – wring out the production planes. All he does is fly.

He checks every system in each aircraft and puts it through an exhausting series of maneuvers over the southern California desert. Usually two or three flights are required before Jim turns the plane over to a Navy pilot for acceptance flights.

On a test hop Jim will drive the A-4 straight up and dive it straight down. He bombs with it, shoots rockets and guns with it, rolls it, loops it, hauls it through every parameter.

He has long since memorized the check profile. "The test procedures haven't really changed that much over the years," he admits. "You pretty much know what's going to happen out there."

Nevertheless, Jim Stegman has learned to expect the unexpected. "I've never had to get out of one," he states, "but I've had just about every kind of emergency there is."

"Which model is your favorite," he was asked one day.

Without hesitation, he signaled with a head nod toward the A-4KU from which he had just alighted, "With that P-408A engine, she's really a rocket – a sweetheart."

Jim Stegman exudes the youthful zest of a squadron nugget. With a job like his, he'll never get old. He is the butt of some gray-haired humor, though. Returning from a recent flight, ground crewmen facetiously climbed the boarding ladder to help their aging test pilot down from the cockpit. Stegman waved them away with a chuckle as bright as the desert sun.

"Sooner than later there won't be any more A-4s," someone said to Jim Stegman. "What then?"

"I try not to think about that," was his simple and somewhat painful reply.

the best flying job
in
the world?

NEPT

By now most VP personnel in fleet squadrons hardly remember that there were ever anything but P-3s in Navy VP squadrons. However, for many years their predecessors never knew that there were any land-based patrol planes other than P2V/P-2 *Neptunes*. And the P-2s have carried on in reserve squadrons and special service so that they are not forgotten among today's Naval Aviation personnel – and certainly not among more senior types from the VP aviation community.

The *Neptune* enjoys the distinction of being the only designed-for-the-purpose, land-based patrol plane to see wide, general Navy service. All others to see general Navy service, including today's P-3s, were derived from other types designed for other purposes; both the P2V's predecessors, the PVs (*NANews*, August 1974) and successors, today's P-3s, being derived from commercial transport designs.

The *Neptune* traces its origins to Lockheed/Vega design studies starting in 1941 when the Navy first acquired land-based patrol aircraft. While types modified from other models served WW II needs, in 1944, two XP2V-1s were ordered, along with 15 production -1 models. These were designed to overcome the many problems of the redesigned types, providing ample space for crew and equipment, and adequate range in a straight-forward twin-engine design. First flight of the initial XP2V-1 took place on May 12, 1945; for the following 17 years, Lockheed's flight line was never without new P2V/P-2 aircraft.

Powered by two 2,300-hp Wright R-3350 engines, and featuring nose, dorsal and tail turrets, the XP2V-1 featured clean lines that were to continue throughout the P2V series – though the aircraft was to grow all manner of electronic and other bumps, and the armament changed regularly.

The most famous *Neptune* was the *Truculent Turtle*, the third P2V-1, which set a world's distance record flying 11,236 miles from Perth, Australia, to Columbus, Ohio, September 29-October 1, 1947 (*NANews*, June 1977). Following initial trials, the first P2Vs went into service with VP-ML-2 in 1947. The -1s were followed by -2s with longer noses and no nose turrets, and subsequent -3s with improved engines. Both these models had variants, initiating a practice that continued throughout the P2V/P-2 series, and which continues in the P-3s today. A special ASW (-2S) and ski-equipped (-2N) P2V-2s were followed by carrier, command transport and radar search (-3C, -3Z and -3W) versions of the P2V-3. While takeoffs from carriers were performed, using JATO assist, the *Neptune* never landed aboard a carrier.

XP2V-1

P2V-6

P2V-7

P2V-5F

Truculent Turtle

P2V-7LP

INE

After the initial aircraft, the -4s introduced the turbo-compound R-3350 engine, had APS-20 radar as a standard feature and were fitted with tip tanks. The Korean War accelerated production of the -5, newly fitted with a nose turret and with larger tip tanks. P2V-5s were the first *Neptunes* to serve with foreign countries, to be followed by later models. P2V-6s featured more flexible armament provisions and reduced-capability radar.

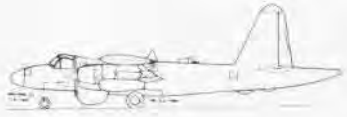
With the -7 the P2V reached its ultimate design. Westinghouse J-34s in wing pods added needed power, a MAD boom replaced the tail turret, nose armament was eliminated and the pilot's cabin redesigned. Many of these features were retrofitted on earlier -5 and -6 aircraft as the *Neptunes* underwent successive modifications for fleet use and for special duties, including some used by the Air Force as RB-69As.

By the time the last of 1,036 *Neptunes* were delivered in 1962, the designation of the P2V-7Ss had changed to SP-2H, and all guns were deleted. Subsequent special versions for Southeast Asia added OP-2E and AP-2H to the list of P-2 modifications. As the P-3s filled out the fleet squadrons, the P-2s continued to fill reserve and support mission roles. By the mid-Seventies, they were being rapidly phased out, and only a few remain in service today.

P2V

Span		
-1,-3		100'
-5		102'
-7		101'4"
Length		
-1		75'4"
-3		77'11"
-5		75'4"
-7		91'8"
Horsepower		
-1		2,300
-3		3,150
-5		3,700
-7		3,750
Engines		
-1	two	Wright R-3350-8
-3	two	Wright R-3350-26W
-5	two	Wright R-3350-30W
-7	two	Wright R-3350-32WA
	two	Westinghouse J34-WE-36 (with thrust of 3,400 lbs.)
Maximum speed		
-1,-3		276 kts
-5		286 kts
-7		350 kts
Service Ceiling		
-1		24,200'
-3		25,800'
-5		24,300'
-7		29,700'
Range		
-1		3,450 nm
-3		2,875 nm
-5		3,510 nm
-7		3,221 nm
Crew		
-1,-3		7
-5		8
-7		9
Armament		
-1		nose, deck, and tail each had two .50 machine guns
-3		nose – six 20mm cannon deck – two .50 machine guns tail – two 20mm cannons sixteen 5" HVAR
-5		same as -3 except nose had only two 20mm cannons
-7		eight 5" HVAR
		All models carried up to 8,000 pounds of bombs, mines, torpedoes

P2V-4



PEOPLE PLANES AND PLACES

Cdr. Ron Stoops welcomes retired Capt. David McCampbell, who served (1938-40) with the *Red Rippers* of VF-11. McCampbell, the top Navy Ace who shot down 34 Japanese aircraft during a single tour aboard *Essex*, was attending the third annual *Essex* reunion at Norfolk and dropped by his old squadron.

VF-14 returned to NAS Oceana in August from a six-and-one-half-month deployment aboard *JFK*. Part of CVW-1, the *Tophatters* participated in many NATO exercises, flying their *Tomcats* a total of 2,241 hours. They counted 1,299 arrested landings with 18 crew members trapping over 100 times each. In July, Lt. Jim Robb became a double centurion and seven others became centurions. They were Cdr. Tim Wright, Lts. Buzz Riley and John Hutchins, and Ltjgs. Dale Vezez, J. W. Orrison, Rick Jensen and Ted Harwood.

Members of VA-46 and VA-72, the last A-7B squadrons in the regular Navy, gather in VA-72's ready room aboard *JFK* after completing what is considered the final operational, carrier-based flight of the Bravo model. Both squadrons, home-based at Cecil Field, are beginning transition training to the A-7E. Pilots of the final flight are (from left) Lt. Ken Richardson, VA-46; Ltjg. Cole Washington, VA-72; Lt. Bill Kinkade, VA-46; Ltjg. John Leenhouts, VA-46; Cdr. Mike Commons, C.O. of VA-72; Lt. Randy Robb, VA-46; Ltjg. Steve Blaser, VA-46; and LCdr. Hal Andersen, VA-72.

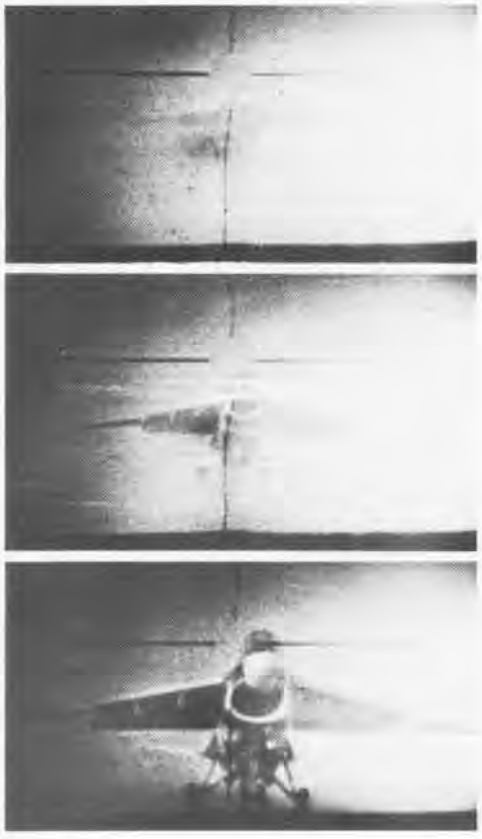
ABF2 James A. Gasowski of NAS Atlanta prepares his radio-controlled *JetRanger* for the Fulton County Air Show at Charlie Brown Airport. Gasowski began his hobby in models at age seven. By 18 he had advanced to radio-controlled models and three years ago he got into helicopters. He decided to enter competition for the first time last year and won several first, second and third place awards. They included firsts in a national and two international contests.

A routine training mission with the Orange County, Calif., fire department's student paramedics turned into a life-saving mission recently for MCAS El Toro's search and rescue unit. The group rescued a 17-year-old boy who had received critical injuries when he fell 150 feet while hiking in Black Star Canyon. The unit was flying in the area when the pilot, 1st Lt. Kenneth P. Ferguson, noticed four boys waving and running around to get his attention. He landed the helicopter, and HM2 Michael J. Thornhill administered first aid before the crew flew the youth to a nearby hospital. Other crewmen were 1st Lt. Terry H. Lewis, copilot, and SSgt. Lanny L. Bumgarner, crew chief.

One of VMA-214's A-4M *Skyhawks* taxies out for the last takeoff from MCAS El Toro for at least a year. The *Black Sheep*

squadron of WW II and television fame has rotated to MCAS Iwakuni, Japan.

On August 12, 1957, LCdr. Donald Walker's F3D was the first Navy plane to be automatically landed. The event was accomplished aboard *Antietam* by the Navy's then new all-weather carrier landing system, developed and built by Bell Aircraft. The photo shows an A-7 in 1973 as it appeared on a TV monitor, flying through limited visibility conditions to a safe automatic landing on *Independence*. Bell is presently building a



system for *Vinson*, the new carrier under construction. The automatic landing system uses radar and computers to enable pilots to make hands-off landings on the pitching, rolling decks of carriers regardless of weather conditions. The system, which is in operation on 13 carriers and six naval air stations, also has two manual modes.

Changes of command:

ComLAtWing-1: Capt. Henri B. Chase relieved Capt. Marvin D. Reynolds.

ComCarGru-4: RAdm. William B. Warwick relieved RAdm. James B. Linder.

ComMAtVAQWingPac: RAdm. Henry D. Arnold relieved RAdm. William H. Harris.

ComPatWingsPac: RAdm. Charles O. Prindle relieved RAdm. John V. Josephson.

ComTacWingsLant: RAdm. John C. Barrow relieved RAdm. James H. Scott.

ComTraWing-6: Capt. Alfred C. Johnson, Jr., relieved Capt. Jack L. Finney.

HC-6: Cdr. R. L. Cooper relieved Cdr. V. Beck.

HM-12: Cdr. Elmer E. Rogers II relieved Cdr. Lawrence D. Presenell.

H&MS-31: LCol. F. H. Menning relieved LCol. Alex Gillespie.

MACS-5: Maj. W. E. Pernell, Jr., relieved LCol. B. G. Brown.

NARF Pensacola: Capt. John S. Mallory relieved Capt. Carleton R. Cooper.

NARU Norfolk: Capt. Ralph W. Smith, Jr., relieved Capt. Robert A. Wenning.

NARU Whidbey Island: Capt. Roland R. Creps relieved Capt. Donald D. Britt.

NARU Washington, D.C.: Capt. Frank X. Azzarita relieved Capt. James O. Wenning.

NAS Barbers Point: Capt. J. William Flight relieved Capt. George S. Phillips.

NAS Bermuda: Capt. Robert L. Sewell relieved Capt. Tommy K. Anaston.

NAS Point Mugu: Capt. O. G. Elliott relieved Capt. L. M. Kraft.

NAS Willow Grove: Capt. Ronald H. Botts relieved Capt. Brian W. Smith.

NavSpaSysAct Los Angeles: Capt. Thomas W. Luckett relieved Capt. Charles S. Bond.

VA-45: Cdr. Richard B. Porter relieved Cdr. Michael D. Trout.

VA-174: Cdr. John F. Calhoun relieved Cdr. John S. McCain III.

VAW-126: Cdr. Dennis M. Kinney relieved Cdr. Robert E. Kordalski.

VC-2: Cdr. Phillip R. Black relieved Cdr.

Thomas K. Whittaker.

VF-194: Cdr. J. S. Bertrand relieved Cdr. J. D. Hamilton.

VFP-306: Cdr. T. C. Irwin relieved Cdr. R. G. Hoch.

VP-6: Cdr. Lindell W. Wright relieved Cdr. Dale A. Meyer.

VP-22: Cdr. David K. Moore relieved Cdr. Hawkins G. Miller.

VP-44: Cdr. Michael C. Roth relieved Cdr. Floyd W. Carter, Jr.

PatWing-11: Capt. Ronald E. Narmi relieved Capt. Charles O. Prindle.

ComAirASWing-1: Capt. Robert L. Whittaker relieved Capt. Roderick P. Crawford.

VT-10: Cdr. Russell G. Duffey relieved Cdr. Ross R. Terry.

VT-31: Cdr. Jack M. Armor relieved Cdr. William A. Wright.

ComHSWing-1: Capt. Daniel R. Bilicki relieved Capt. Warren E. Aut.

PH1 John Sheppard photographed AA Richard Lee Maynard of VFP-63 inspecting the air intake of an RF-8G *Crusader* for foreign objects. Maynard, who was selected VFP-63's Sailor of the Month for July, says his hope is to become an NFO someday.

Four Navy men and two civilians at NAS Atlanta were among more than 6,000 participants competing in the 6th Annual Peachtree Road Race held in Atlanta recently. The six men finished the 6.2-mile race despite

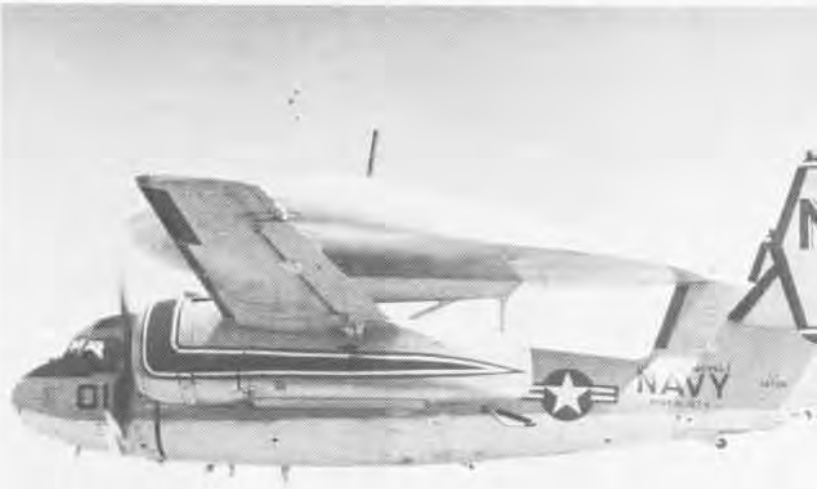
90-degree weather which hospitalized more than 50 participants. Showing their running style in front of Atlanta's *Spirit of '76* are, (from left) Jack Marshell, LCdrs. Bill Robinson and Dave Miller, IS2 Rich Williams, Fred Robinson and Lt. George Henish.

Det One of HSL-34 became the first East Coast helicopter unit to land and operate aboard a *Spruance*-class destroyer. Less than one month after commissioning, the *Arthur W. Radford* (DD-968) signaled her first "green deck" and Lt. Pat Tierney, Ltjg. Joe Belinski, AW3 Douglas Perry and AWAN Pat Sissom brought their SH-2F in for the first landing. Det One spent two weeks aboard *Radford* integrating air and surface communities. The *Spruance*-class destroyers, the first ASW ships designed from the hull up to accommodate helicopter operations, are tentatively scheduled to deploy with SH-3Hs.

Two Jacksonville reserve units, VP-62 and Company B of the Marines' Fourth Assault Amphibian Battalion, sent help to the small town of Windber, Pa., when July floods ravaged the land and almost everything on it. After hearing that 7,000 Windber homes had been swept away and that the other 8,000 area residents were without electricity, telephones or drinking water, the Marines solicited and the Navy delivered $60,000 worth of goods to them. The 5,000-pounds included practically everything imaginable from baby cribs and bedding to clothes and cleaning equipment.

It was a coincidence of numbers and a rare privilege recently for VF-101 when skipper Cdr. John T. McHugh simultaneously advanced "101" enlisted *Grim Reapers* to their next pay grade. Most of those advanced are pictured here. The squadron is the F-4 and F-14 Atlantic Fleet replacement squadron.

VA-65 recently completed a 52-hour *EndurEx* aboard *Independence* in the Aegean Sea. The exercise, which involved continuous flight operations for a given period of time, demanded precise coordination between the air wing and ship's company because of limited air space around CV-2.



The last fleet E-1B, BuNo 147211, was photographed by PH3 Bruce Tombecky of VAQ-33 on June 21 as it flew to Davis-Monthan AFB, Tucson, for storage. The VRF-31 pilot and copilot were LCdrs. Henry Pricenski and William McCarthy.

The Brazil-America Connection

Story and Photos by JO1 Bob Leonard

Carrier Air Wing Six personnel aboard *America* hosted Brazilian Air Force and Navy pilots this summer for three days of carrier qualifications off the coast of Brazil. On the return trip to *America's* home port, Norfolk, a young fireman fell overboard. He was immediately rescued by the duty-alert crew.

America sailed in mid-June for joint training and port visits in Salvador and Rio de Janeiro. Taking part in the qualifications were Brazilian Air Force S-2s, which operate from the aircraft carrier *Minas Gerais*. Brazilian Navy helicopters, which are flown and maintained by squadrons very much like the U.S. Navy's, also joined the activities.

Minas Gerais has been undergoing extensive overhaul and modernization in Rio since late 1975. This had limited the opportunity for Brazilian pilots to renew and acquire carquals.

During the three days the Brazilians were aboard, each of the 28 pilots from the 1st Grupo de Aviacao Embarcada (GAE) – embarked aviation group – at Santa Cruz Air Force Base near Rio de Janeiro, made 16 carrier qualification landings. About 50 percent of the pilots qualified for the first time while the remainder renewed their quals.

The 1st GAE, commanded by LCol. Disraeli J. A. Saback, was hosted by Commander Jack B. Austin and the *Hukkers* of VS-28. Brazilian flyers from Helicopter Antisubmarine Squadron One also did their carquals in SH-3Ds from *America's* flight deck during the same period. HS-1 personnel, commanded by Commander Mario de Sa Barretos, were the guests of Commander G. M. Thompson of HS-15.

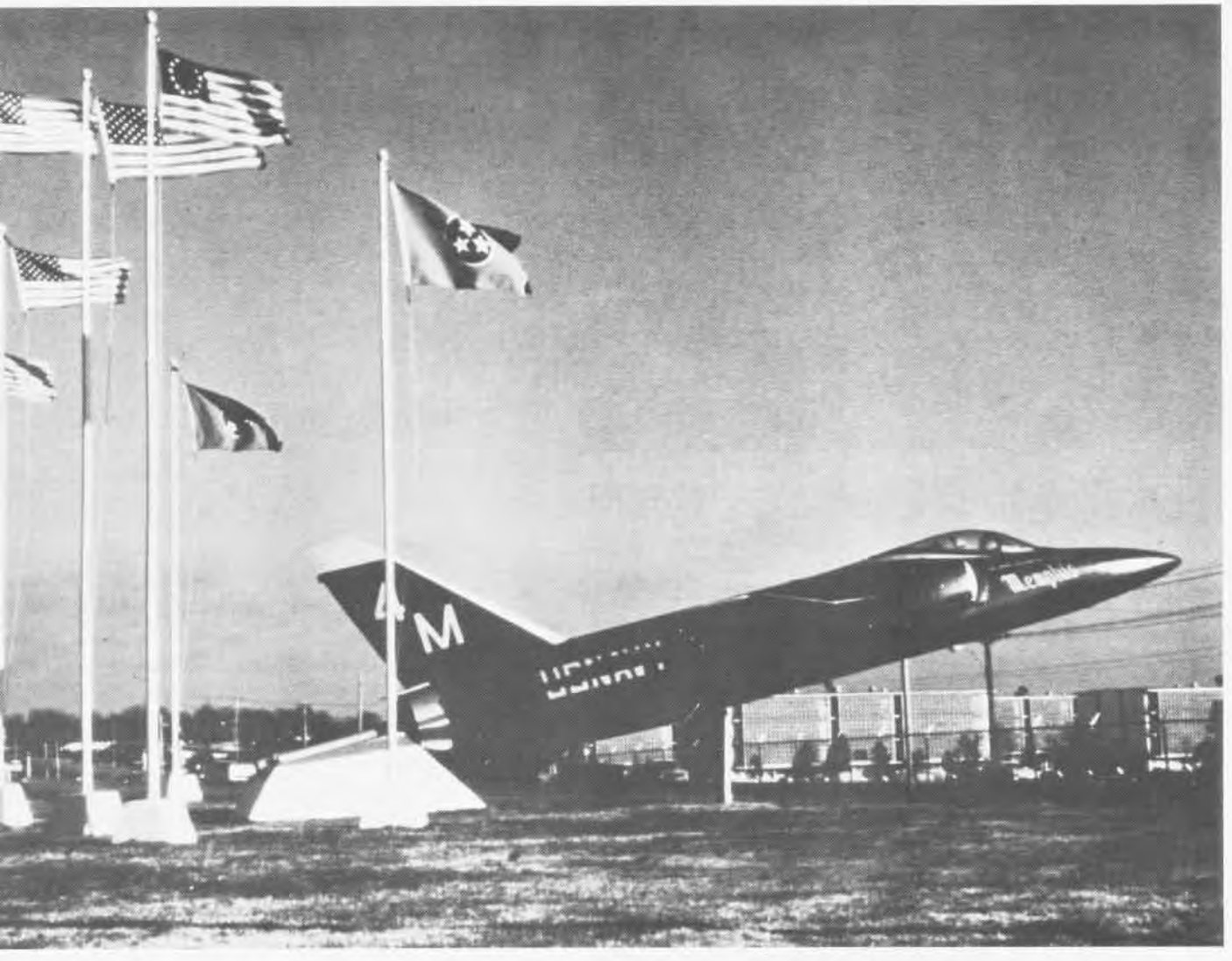
The at-sea rescue occurred during the trip home. It was Sunday, July 10. Holiday routine had been set and it was a sunny day. A cookout and talent show were planned. The *Red Lions'* alert crew of Lieutenants junior grade John Thogerson and Dave Crocker and AX2s J. J. King and Terry Walker had been briefed, had preflighted their *Sea King* and assumed the alert status for the day.

While most of the crew was beginning to enjoy the casual pace of holiday routine, interior communications fireman John Markiewicz was beginning work on a ship sponson (refueling station). With his back to the sea, he heard a loud noise and then felt very wet.

"There was some momentary groping of arms and legs, but I was so wet I couldn't hold onto anything or anyone. I fell into the drink," says Markiewicz. "The fear began as I watched the ship pulling away from me. I heard the ship's whistle blow and I saw a helo lift off. What a relief to know that help was on the way. I laid on my back swallowing water and trying to keep afloat. Then the helo was hovering over me. A man (J. J. King) jumped into the water and the next thing I knew I was thanking the crew for saving my life." The rescue took only 15 minutes.

Brazilian Air Force S-2 warms up while an SH-3D lifts off during a three-day U.S. Brazilian carrier qualification period on board America. Above, America's alert rescue helicopter crew picks up a young U.S. fireman who fell overboard during the trip back to America's home port, Norfolk.

Navy Memphis



By Helen F. Collins

Naval Air Station, Memphis, Millington, Tenn., observed its birthday last month. Thirty-five years ago, on September 15, 1942, Naval Reserve Aviation Base (NRAB), Memphis was commissioned in a brief ceremony which started at exactly 1300. Orders were read, the flag was raised, the watch was set. Its mission was primary flight training of cadets for action in WW II. At 1330 the first class of Naval Aviation cadets began training on a runway only 20 percent completed.

The following January, all NRABs engaged in primary flight training around the country were redesignated naval air stations, without a change of mission. Thus, NRAB Memphis became NAS Memphis.

Part of the site, however, began its association with aviation many years earlier, in another world war. In 1917, the United States was asked by her Allies to send 4,500 planes, 5,000 pilots and many thousands of mechanics to Europe to help win air supremacy. The U.S. Army arranged with Canada to use some of her airfields in return for Canadian use of American fields when they were built. In this way the U.S. was able to start training immediately while searching for airfield sites. Locations in the South were given primary consideration because they provided favorable flying weather for about 10 months of the year.

The Signal Corps Aviation Section leased 904 acres from the Memphis Chamber of Commerce, approximately four-fifths of a mile east of Millington, and contracted for the construction of an aviation training field. It was called Park Field. Before construction was completed, the flying school was providing primary flight training, using mainly the JN4 *Jenny*. The JN4 was a biplane that carried two. It had a wooden propeller and its frame was covered with fabric. There were no parachutes, so pilots had to be extra attentive to their flying techniques. The *Jenny* was generally a good plane for training as it was somewhat forgiving of the students' mistakes.

Flight training did not always involve the winning of awards or the kind of accomplishments which produced statistics. Sometimes there were incidents never entered in the record books. One involved a pilot who took his plane on a cross-country flight to Oxford, Miss. His plane developed engine trouble and he had to land in a field, short of his destination. The necessary repairs could not be made until the next day and so the pilot spent the night in Oxford. In the morning, when he returned to the plane, he found only the frame. During the night, cows grazing nearby were attracted by the smell of the preservative, liked the taste and ate the fabric. As a result of this and other untoward incidents, pilots found it necessary to have their planes guarded if they had to leave them in a temporary landing place for any length of time.

The flying school at Park Field ran in high gear during 1918. It became one of the busiest units in the country and the activity continued unabated until November 11, when the Armistice was signed.

The War Department decided to purchase the field but the process of acquiring it was drawn out over many months. Finally, on March 23, 1920, the U.S. Government took title to Park Field for $88,010.50. While purchase negotiations were dragging on, flying operations began to fall off. They continued to decrease until by 1922 the base was only a storage area for aircraft and parts. The government decided not to use it for further instruction at that time and the JN4s left at the field were offered for sale to the public at $50 each. One could buy a spare engine for $25. Many pilots of the barnstorming era obtained their aircraft from sales such as this.

It was decided to tear down many of the buildings in 1923. The remaining planes were dismantled and, after the engines and tires were removed, the parts that were left were burned. Most of the land was used for growing crops, although for a time a civilian flying school operated there.

Park Field served as a transient camp during the early 1930s for those unemployed because of the depression. In the late 1930s until the beginning of WW II, the resettlement administration developed a number of model farms to demonstrate what could be achieved with correctly managed farm land.

The site came full cycle again when the Navy in early 1942 chose it for the establishment of a naval reserve air base and an aviation school.

Secretary of the Navy Frank Knox ordered preliminary work begun. The first sailor to report for duty, Chief Yeoman Maurice B. Mugg, arrived on March 31, 1942, and could find no one to report to. He finally turned himself over to a civilian, Allen Morgan, who was anxiously waiting there for his commission and orders. In April, the government acquired additional land for the base and by June 13 two aircraft had arrived, an NE1 and an N3N-3. The first captains mast was held September 10. Since there was no brig, any offender found guilty served his time in the Memphis city jail.

NRAB Memphis was commissioned on September 15, and a week later the Naval Training Station (Aviation Maintenance) was established on the base with the primary mission of aviation technical instruction. The following February, its name was changed to Naval Air Technical Training Center. The Chief of Naval Air Technical Training moved his headquarters to Memphis in 1946.

A major change took place on April 1, 1949, when NAS Memphis, as it stands today, was commissioned. At that time the old NAS in essence became the Naval Air Reserve Training Unit under the Chief of Naval Air Reserve Training. The new NAS Memphis took over all the logistics and support functions of NATTC and CNATechTra. It operated under the military command of CNATechTra and under the management control of the Bureau of Aeronautics. All other commands except the naval hospital became tenant activities.

The Naval Air Advanced Training Command was one of the activities aboard the air station from 1955 to 1958, when it was disestablished.

To meet changing maintenance techniques, a department of the Naval Air Technical Training Center, which ran a mobile training program, became a separate command in 1960 known as the Naval Air Mobile Training Group. Its mission was to provide, by means of naval air mobile training detachments (NAMTDs), technical instruction for officers and enlisted personnel in the operation, maintenance and repair of aircraft.

The concept of mobile maintenance training was born in 1942 when Naval Aviation was faced with the problem of not only teaching raw recruits to be dependable maintenance personnel, but also with keeping personnel in the field posted on new developments and changes. At first training was conducted at factory schools but soon the number of trainees became too large for the factories to handle. The problem was met by sending schools to the men instead of bringing men to the schools.

To carry out its mission, the Group had 68 detachments scattered throughout the U.S. Instruction was given on approximately 20 different types of aircraft, including trainers, fighters, attack and helicopters. In addition, the NAMTDs provided classes in air-to-air missiles, aviation ordnance, aircraft engines, ejection seats and other equipment. In the early 1960s, CNO began to base-load all aircraft of a particular class at designated air stations. The need for the caravan type of classroom decreased and the command set aside most of its rolling stock. In February 1962, in order to more adequately describe its function, the Naval Air Mobile Training Group substituted the word maintenance for mobile in its name.

Air operations of the station in 1973 included round-the-clock support of Israeli cargo aircraft during the Middle East conflict. The station also provided proficiency aircraft in support of approximately 600 Naval and Marine Aviators for some time but that program ended on October 1, 1976.

Today, NAS Memphis, the largest landlocked naval air station in the U.S., is the logistic and support activity for 22 tenant commands:

The Chief of Naval Technical Training (CNTechTra) maintains his headquarters aboard the air station where he and his staff administer the Navy's technical training program. The program begins with basic training for all recruits and officer candidates, and continues through various levels of technical skills up to instruction for the most highly advanced technicians. Over 3,000 Navy courses are conducted throughout a network of 53 schools located at approximately 30 different installation in the U.S., including Hawaii.

The Naval Air Technical Training Center, the largest single command housed on the air station, graduates about 25,000 students each year, most of whom report to the fleet where they become responsible for maintaining the Navy's aircraft systems and equipment. The center contains 18 schools. Most are subdivided into more than one course, in line with the rating structure of the Navy. Class A schools provide trainees with the basic knowledge and skills required of third class petty officer ratings. Class C schools cover specific skills not generally peculiar to any one rating. Class P schools are preparatory schools, prior to Class A or just prior to a fleet assignment.

The Naval Air Maintenance Training Group, headquartered at Memphis, serves as the direct link between the Chief of Naval Air Technical Training and the fleet. Its mission is to provide, by means of Naval Air Maintenance Training Detachments, technical training for officers and enlisted personnel in the maintenance and repair of aircraft and equipment. The command consists of more than 50 detachments at nearly 30 Navy and Marine installations. Over 800 courses are conducted by approximately 1,300 instructors.

Marine Aviation Training Support Group 90 is an integral part of NATTC. Personnel fall into one of two categories, students or support. Students are channeled through one of two training squadrons for avionics, mechanical or air traffic control courses.

Left, SP-2H Neptunes are flying today at Memphis. Above, OS2U-1s like these once operated there. Marines use the A-4F, right.

The Group also has administrative control of students assigned to a squadron in Meridian, Miss., for clerical training.

The Marine Air Reserve Training Det is one of 15 such detachments around the country. Four Marine reserve aviation units are attached to MARTD Memphis: VMA-124 (which flies A-4Es and TA-4Js), MABS-41, 26th Staff Group and Marine Air Traffic Control Unit 71. There are 350 Marine reservists in the four units.

NARU Memphis, presently under a Navy commander, reports to the Chief of Naval Reserve at New Orleans. It has an active duty allowance of 17 officers and 175 enlisted personnel. In addition to training about 1,500 Selected Air Reservists, the command maintains liaison with the three reserve force squadrons at the air station, which fly and maintain 30 assorted aircraft.

Reserve squadron VA-204 has 174 enlisted and 26 officers, with 15 A-4L *Skyhawks* assigned. During 1976 their training covered loading and delivery of conventional and nuclear weapons, low level navigation, close air support, ECM/DECM training, aerial refueling and carrier landing.

VP-67's complement consists of 75 officers and 323 enlisted. An active duty maintenance cadre functions during the absence of its Selected Air Reserve squadron mates. VP-67 operates under Commander, Reserve Patrol Wing, Pacific with 12 SP-2Hs. Its mission is to conduct flight and ground training to maintain maximum readiness for mobilization.

VR-53 is under the operational and administrative control of Commander, Reserve Tactical Support Wing. It is tasked with training for all-weather worldwide logistic support flights, and conducting such flights as directed. The unit is assigned 29 officers, 112 enlisted and 3 C-118s.

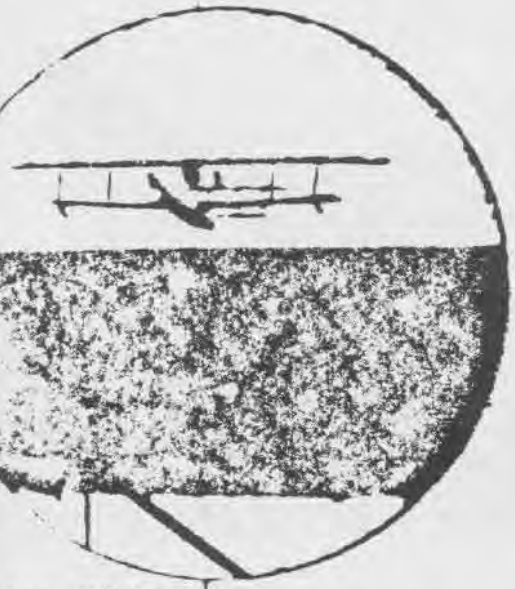
Among the other tenant commands aboard the air station are a Naval Weather Service Environmental Detachment which provides 24-hour-a-day meteorological forecasting and analysis service to the station and its tenants. There is also a National Weather Service Meteorological Observatory which is part of the National Weather Service Network that serves the nation.

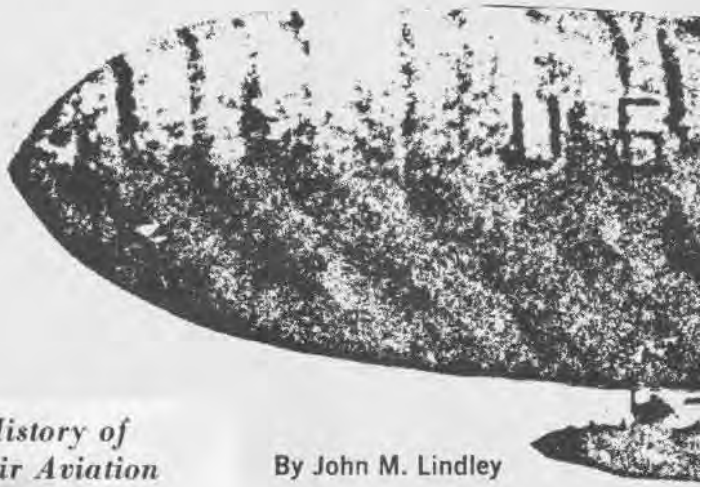
NAS Memphis is considered by its tenants to be the landlord of Navy Memphis and as such the station does everything necessary to run a large civilian and military city. Captain Ronald J. Kurth is the commanding officer. His command includes approximately 700 enlisted men and officers and 1,500 civilians. He maintains more than 3,400 acres of land, airfield, buildings and equipment, and performs tasks in administration and upkeep equivalent to those involved in running a major corporation.

The air station is a complex of technical training activity which touches the lives of nearly every man and woman wearing Navy Blue and thousands of Marine Corps specialists. With the consolidation of some types of training within the military, many members of all the services, as well as foreign students, benefit from the programs operating aboard NAS Memphis.

Graphic Section
Part Six

New York





A History of Sea-Air Aviation

Wings Over The Ocean

part four

By John M. Lindley

The first heavier-than-air flight over the Atlantic came 10 years after Blériot flew across the English Channel in 1909. Although Glenn Curtiss and his associates had built the flying boat *America* in 1914 with the intention of trying a transAtlantic flight, World War I intervened and caused them to abandon their plans. World War I may have delayed the conquest of the Atlantic four or five years, but it had one consequence for sea-air aviation that was far more positive: it served as a catalyst for the development of airplanes, engines and flying techniques which could be utilized on a transoceanic flight.

Even before the war broke out, Lord Northcliffe, the wealthy owner of the London *Daily Mail*, put up, in April 1913, a prize of £10,000 (about $50,000) for the "first person who crosses the Atlantic from any point in the United States, Canada, or Newfoundland to any point in Great Britain or Ireland in 72 continuous hours." When the war prevented competition for the prize, Lord Northcliffe renewed his offer in 1919, thereby setting off a flurry of flight preparation.

Yet the financial incentive of the *Daily Mail* prize had nothing to do with the flight of the U.S. Navy's NC-4 which achieved the distinction of being "first across." World War I, rather than the prize money for which the Navy flyers did not even compete, had provided the motivation for the

Tribune

Graphic Section
May 18, 1919

The NC-4 p
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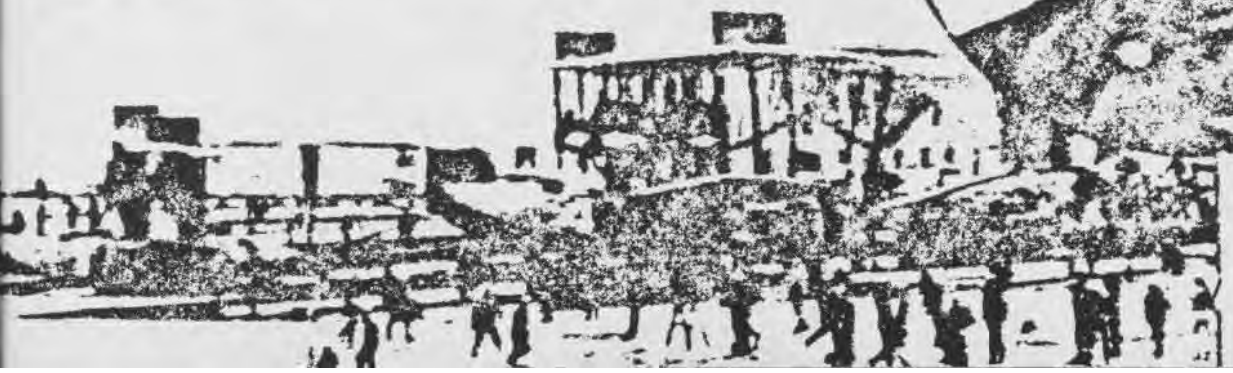

1919 flight of the NC-4.

In August 1917 Rear Admiral David W. Taylor, Chief of the Navy's Bureau of Construction and Repair, tasked his aviation staff with developing an aircraft capable of flying to Europe. Such a plane, RAdm. Taylor argued, would avoid the German submarine menace and the difficulties of shipping crated aircraft to Europe. Taylor's idea materialized about a year later in a flying boat built by the Curtiss Co. and other aircraft subcontractors. The NC flying boat, as the design was called (N for Navy, C for Curtiss), was a huge aircraft: 126-foot wingspan; 11-ton weight; 4 Liberty engines that produced a total of 1,600 horsepower. In fact, the wingspan of the NCs was only four feet shorter than the wingspan of the present-day Boeing 707.

Although the Navy and the Curtiss Company had designed and built the NC flying boat in little over a year's time, even this effort was insufficient for getting the aircraft ready for the last weeks of the war. By October 1918, NC-1, the first of four that Curtiss would build, had made 18 flights and shown that it met design requirements. Now that the Navy had its NC flying boats, it had to use them. Commander John H. Towers, a Naval Aviator, proposed to the Chief of Naval Operations that the Navy organize a flight across the Atlantic with the NCs in the spring of 1919. Cdr. Towers stressed the national honor involved in such a pioneering flight. Secretary of the Navy Josephus Daniels agreed and in February 1919 he put Towers in charge of the flight.

Preparations for the flight were elaborate and detailed. Under Cdr. Towers' authority, crews of six men were assigned to NC-1, -3, and -4. NC-2 had to be cannibalized for parts for the remaining three aircraft. Each plane had a commanding officer who acted as the navigator, a pilot, a co-pilot, a radio operator and two engi-

neers. Towers commanded NC-3; LCdr. P. N. L. Bellinger, NC-1; and LCdr. Albert C. Read, NC-4.

Besides the technical problems of preparing three aircraft to top operating condition, the NC crews had to consider additional problems associated with transoceanic flying. These problems were: adequate fuel load to fly from Newfoundland to the Azores; weather conditions during the flight; navigating over open ocean to an island destination; communications; and facilities for survival and rescue if the aircraft were forced down at sea.

Finally all was ready. NC Seaplane Division One commanded by John Towers left Rockaway, N.Y., on May 8, 1919. Its destination was Halifax. From there it would proceed to Trepassey Bay, Newfoundland, to begin the long over-water leg to the Azores. Soon after takeoff, NC-4 developed engine trouble and had to make an emergency landing and taxi to the naval air station at Chatham, Mass., for engine repairs. Meanwhile, NC-1 and NC-3 went on to Halifax. With a new engine, the "lame duck" NC-4 headed north to catch up with the other two flying boats at Trepassey. When Cdr. Read and his crew reached Newfoundland, they found the other two aircraft taxiing across the bay for takeoff. Fortunately for the NC-4, the -1 and -3 were unable to get off the water: they had too much fuel aboard.

While the NC flying boats had been gathering at Trepassey Bay, other aviators had also arrived in Newfoundland. They were there to compete for the *Daily Mail* prize and like the NCs wanted to take advantage of the strong west-to-east winds to be first across the Atlantic. An Australian test pilot, Harry Hawker, and his British navigator, LCdr. Kenneth MacKenzie Grieve, were there with a Sopwith biplane with a 375-hp engine. F. P. Raynham and Capt. C. W. F. Morgan were also there. They had arrived in April with a Martinsyde airplane named *Raymor*. British Admiral Mark Kerr and his crew were preparing for the flight with a Handley Page V/1500, a four-engine bomber. A U.S. Navy airship, C-5, was also on hand for a transAtlantic try. And word had already reached the various flying teams that another pair of Englishmen, John Alcock and Arthur W. Brown, were en route to Newfoundland with a Vickers *Vimy*, a converted World War I bomber, to attempt the crossing.

Nervously the flight crews studied the weather and watched each other's preparations. Drawing on its experience with McCurdy's flight of 1911, the Navy had stationed nearly 60 ships, most of them destroyers, at 50-mile intervals along the proposed route of the NCs. These ships would serve as navigational checkpoints, provide weather information, and stand by for emergency search and rescue should any of the flying boats be forced down en route to the Azores. The other transAtlantic competitors would fly, of course, without the aid of these station ships because their destination was Ireland or the British Isles, not the Azores.

On May 16th the weather was clear and the NCs prepared for an evening takeoff so that they would have daylight to find the Azores. They taxied across the bay, but only NC-4 could get off the water. The other two flying boats lightened their craft of all expendable equipment as well as one crewmember on NC-3 and the emergency radio designed to communicate with ships in the event of a forced landing. On the second try, all three took off successfully. With the string of destroyers to guide them during the night with flares, searchlights and occasional radio bearings, the NCs had little trouble with navigation until dawn on May 17. The daylight brought fog and a steady drizzle which obscured the destroyers and made visual navigation impossible. Realizing that they were lost, both NC-1 and NC-3 landed to establish their respective positions. NC-4, in contrast, continued on toward the Azores relying upon radio direction bearings from the destroyers in lieu of visual navigation. NC-1 had landed only slightly off the track to the Azores. Between station ships 17 and 18, NC-3 had gotten off course and was drifting south of the islands after it had landed. Although the crew members of NC-1 were afloat about 100 miles from the nearest port in the Azores, they were only on the water for five hours before a passing Greek freighter picked them up. All subsequent efforts to take NC-1 under tow failed, and the flying boat eventually sank.

NC-3 had a more difficult time. After a hard landing in heavy seas, NC-3 was able to establish its position but unable to take off or to communicate its position to the searching destroyers because it no longer had its emergency radio. Consequently Cdr. Towers and his crew taxied and sailed stern first some 205 miles in 53 hours to the port of Ponta Delgada, their original destination in the Azores.

Meanwhile NC-4 had safely landed at the port of Horta at 11:23 a.m. local time. Read and his aircraft had flown 1,200 miles at an average speed of 74.8 knots. Handicapped by bad weather, NC-4 was unable to fly from Horta to Ponta Delgada until May 20. From there it flew on to Lisbon, Portugal, on May 27 and finally reached its ultimate destination of Plymouth, England, on May 31. At each stop,


NC-3

the crew of NC-4 received a hero's welcome.

NC-4 had been first across, even if the entire trip from New York to Plymouth had taken over 20 days. Although the experiences of the other two flying boats had been more dangerous and their rescues more dramatic, they failed where the NC-4 succeeded primarily because both NC-1 and NC-3 had been overly dependent upon the station vessels for navigation. When heavy fog had forced them to land to straighten out their navigation, they were unable to get airborne again. NC-4, in contrast, had relied on radio bearings for navigation in the fog and thus had been able to keep a better fix on its position. Clearly the flight of the NC flying boats showed that there was a great need to develop more accurate means for navigating over water, especially in bad weather, and to de-

velop a systematic method for accurate reporting of weather, before commercial flights across the Atlantic would be possible.

NC-4 had made it across first, but what of the others who were trying for the *Daily Mail's* prize? The Navy blimp C-5 was blown out to sea on May 15 before the NCs left Trepassey; so although no one was hurt in this accident, the blimp was out of the running. Hawker and Grieve took off on May 18, but about four hours out of Newfoundland, their engine overheated and they went down at sea. Fortunately a Danish freighter picked them up before their aircraft sank. For their efforts, they received a consolation prize of £5,000. Two hours after Hawker and Grieve took

off, the *Raymor* taxied across its airfield but while lifting off, a downwind yaw smashed the landing gear into the ground resulting in a crash in which the two men were unhurt. Adm. Kerr's bomber never did take off for Ireland because in the meantime Alcock and Brown had become the first to make a nonstop flight from Newfoundland to Ireland, thereby winning Lord Northcliffe's prize money.

Capt. John Alcock and Lt. Arthur W. Brown had both served in WW I, and both had begun thinking about a transAtlantic flight while serving as prisoners of war. Alcock was a pilot; Brown an air observer and artillery spotter. After the war, they went to work for the Vickers Aircraft Company where they learned of each other's plans. They convinced Vickers to let them use one of their twin-engine *Vimy* bombers which had been designed late in the war as a long-range night bomber. They stripped the plane of all its military hardware, added additional fuel tanks and a radio. On May 4, 1919, the plane left in crates for Newfoundland. Alcock and Brown then arrived in Newfoundland in time to see the NCs and the other competitors for the *Daily Mail* prize take off.

Carefully the two British flyers reassembled and tested their plane. Despite trouble with the radio they felt all was ready on June 14. That afternoon they taxied into a 40-mph wind and took off in good visibility. Soon the weather deteriorated into heavy fog. They had no way of checking their position over the Atlantic until about midnight when Brown was able to get a star sighting through a break in the fog. The next day was even worse. Snow and sleet brought icing problems. Six times Brown had to climb out of the cockpit to the engines and clean off the ice so that he could read the instruments and prevent the ice from choking the engines. About 5:00 a.m. on the 15th, navigator Brown got a look at the sun for a second navigational fix. He concluded from this position that they were approaching Ireland. Confident that they had sufficient gas to fly the remaining part of the trip, Alcock took the bomber down close to the sea where the warmer air and sun melted the ice. At 8:15 they sighted Ireland and headed in for a landing on what appeared to be a flat, even field. Their landing field turned out to be a peat bog near Clifden, Ireland, only 10 miles off their intended course. Upon landing, the nose of their plane tipped over in the soft turf. Fortunately there was no fire and neither pilot nor navigator was hurt. When the unbelieving local townsfolk refused to accept their story that they had just flown 1,890 miles in 16 hours and 20 minutes from Newfoundland, the resourceful airmen produced their padlocked Newfoundland mail pouch which was all the proof needed to convince their hosts of the truth of their story. For their efforts, the *Daily Mail* awarded Alcock and Brown £10,000 which they shared with their Vickers' mechanic. The King of England subsequently knighted both men in the festivities honoring their historic flight.

The NC flying boats had been first across but they had made the trip in stages. Alcock and Brown had made the first nonstop west to east crossing. Yet the recounting of the bare facts of these flights fails to do them, or the flights of their competitors and successors, full justice. After the flight was over, John Alcock described it in grim terms: "It was pretty chancy. Once or twice, in fact, we thought our number was up." When Alcock made this statement, he was not exaggerating for the benefit of the newspaper reports. Indirectly, his comment reflected the rather primitive state of over-ocean flying in 1919.

Aerial navigation, whether over land or water, could give the flyer three types of information: where he was at that time; in what direction he ought to steer to get to his next desired position; and the estimated time when he would arrive at that position. Even before the Wright Brothers invented a practical flying machine, balloonists had been trying to solve the problems of aerial navigation. The aeronauts found they could use some of the techniques of marine navigation, such as the magnetic compass for heading and the barometer for altitude, supplemented by visual identification of landmarks. Dependence upon landmarks led logically to the development of aerial maps which showed key terrestrial features such as railroads, towns, rivers, mountains and so on. By 1914 some balloonists had even mastered the techniques of celestial navigation. Thus they could determine their position from the stars if they were unable to find clearly identifiable landmarks.

Airplanes and airships, far more than balloons, had to fly a particular heading; hence they quickly adapted the marine compass for aerial use. By 1914 aviators also had elementary instruments for measuring air speed and drift (the difference between the actual course flown due to wind and other factors and the intended course). Simultaneously, government authorities began to develop ground aids to navigation such as beacons, searchlights and ground signs. These beacons were essential for night flying.

Between 1914 and 1918 many aviators tried to improve or refine navigational techniques or instruments under the pressure of wartime flying conditions. As combat flights grew longer, pilots found they had to rely upon maps. Yet they had little time

to take their hands or eyes off the controls to study a map. Space in an open cockpit was at a premium. Two alternatives — improve the maps or add another crew member to navigate — were the immediate solutions to this problem. The necessity for a navigator was readily demonstrated in both the flight of NC-4 and of Alcock and Brown.

Yet these two flights of 1919 also showed how difficult over-ocean flying was, especially in poor weather. Aerial navigation improved only marginally in the 1920s. In describing the problems in navigation on his 1927 flight from New York to Paris, Charles Lindbergh wrote: "How does one navigate along a great circle, crossing 3,600 miles of earth and ocean? I've never made an over-water flight before. In fact, I've never really done any long-distance flying at all." Despite the availability of a bubble sextant since 1919, when LCdr. Richard E. Byrd, USN, among others, developed this tool for taking celestial observations by means of an artificial horizon, Lindbergh decided not to take one on his flight. His subsequent problems with navigation confirmed his belief that he could never have handled the sextant with one hand while he used the other to keep the plane steady. Lindbergh also decided that taking a radio would be of little use to him. He did not even use a drift indicator. All he would depend upon would be his compass, marine charts, turn indicator, air-speed instrument, and dead reckoning (distance traveled equals the product of speed and time flown). Fortunately Lindbergh's navigation by dead reckoning on the Newfoundland to Ireland leg of his flight was skillfully done and he arrived over Ireland not far from his intended position.

Nevertheless Lindbergh's rudimentary navigational methods were not always the norm. As the *Lone Eagle* was quick to point out, all he had to do was to hit the whole continent of Europe, not a group of islands such as the Azores. One example of the accuracy which was possible in aerial navigation for some pioneer over-ocean flyers is the flight of the Portuguese naval officer Gago Coutinho from the Cape Verde Islands to St. Paul's Rocks located on the equator some 600 miles northeast of Natal, Brazil. Coutinho's navigational problem on this leg of his South Atlantic crossing was compounded by the small target he had to hit: St. Paul's Rocks covered an area of only 650 square *yards* with a maximum elevation of 30 feet.

In order to make sure he found St. Paul's Rocks and did not run out of fuel over the Atlantic, Coutinho designed and tested a type of bubble sextant in 1921. He became very proficient in its use. Thus, when he took off in a small, single-engined seaplane in April 1922, he was able to rely upon celestial navigation (which has a potential for greater accuracy than dead reckoning) to find St. Paul's Rocks 11 hours and 20 minutes after he departed the Cape Verde Islands. In its time, this was a truly remarkable feat of aerial navigation.

So much has been written about Charles A. Lindbergh and his nonstop flight from New York to Paris in 33½ hours that there is little need to recount more than the briefest details of the flight. Raymond Orteig, a French-born American who owned the Brevoort and Lafayette Hotels in New York City offered a $25,000 prize for the first nonstop flight between New York and Paris. He offered the prize first in 1919 and subsequently renewed it because he felt the flight would foster good international relations between the United States and France. Between 1919 and 1927 there were few attempts at a transAtlantic flight to win the Orteig prize, but 1927 became the year for what Edward Jablonski calls "Atlantic fever." In addition to Lindbergh, no less than five other flying teams declared their intention of winning the prize. The Frenchman Rene Fonck said he would fly the Atlantic in a Sikorsky biplane with three engines. But during one attempt to take off in September 1926, the plane had failed to become airborne and two of the four men on Fonck's plane died in the resulting crash and fire. Cdr. Byrd of the U.S. Navy was readying a Fokker trimotor monoplane, called *America*, for the flight. A New York millionaire, Charles Levine, had bought a Bellanca monoplane with a Wright Whirlwind J-5 engine which he was sure one of his pilots could fly to Paris. Lindbergh liked Levine's plane, *Columbia*, so much he tried to buy it for his own use on the flight, but he and Levine failed to agree on the terms of sale. Another competitor for the prize money was the team of LCdr. Noel Davis and Lt. Stanton Wooster. They would fly a Keystone biplane with three Wright Whirlwinds. This aircraft was called the *American Legion* after Davis' and Wooster's financial backers. And last, there were two Frenchmen who were sure they could win the prize flying from Paris to New York. These brave pilots were Charles Nungesser, a French ace in WW I, and François Coli, who was also a skilled pilot. Nungesser and Coli would fly a single-engine monoplane called the *L'Oiseau Blanc (White Bird)*.

By the beginning of May 1927 the Ryan Aeronautical Company of San Diego, Calif., had finished the *Spirit of St. Louis* for Lindbergh, and he was making test flights in the plane. The other competitors were readying their aircraft. The first team to try the crossing in 1927 was that of Nungesser and Coli. They took off on May 8 and were never seen again. Davis and Wooster had already given

NC-4

their lives in April 1927 for the cause of transoceanic flying when their plane had crashed in a Virginia swamp due to being overloaded. The mud and fumes suffocated both men. These two disasters left the Byrd team, the Chamberlin group and Lindbergh in the field.

The *Lone Eagle* arrived in New York from San Diego and St. Louis on May 12. There he waited at Curtiss Field for the weather to improve. Weather reporting and forecasting even in 1927 were hardly as accurate as they are today. As Lindbergh pointed out, the few weather stations that were set up then were designed to serve sailors and farmers — not pilots. Synoptic weather reports were primitive by present-day standards. And few merchant vessels bothered to radio in weather reports of conditions on the high seas. On the evening of the 19th, Lindbergh got word from the weather expert, Doc Kimball, that conditions over the Atlantic were probably going to improve the next day. With that information in hand, Lindbergh decided to go. He took off at 7:54 a.m. from Roosevelt Field on the 20th and, following the shortest route, flew north over Newfoundland before heading east to Paris. Thirty-three hours and 28 minutes later the *Spirit of St. Louis* landed at Le Bourget airport in Paris.

Lindbergh had flown a single-engine monoplane powered by a Wright Whirlwind J-5 engine. His reasons for choosing this type of aircraft were straightforward. It cost far less than a big trimotor plane. He judged that a multi-engine plane would be unable to get back to land if one engine failed so there was no need to use a trimotor. In addition, Lindbergh knew three engines would mean more fuel, making the plane even bigger and heavier than a single-engine plane. A flying boat, he knew, would be unable to take off with enough fuel for the crossing. Thus taking all the factors into consideration, Lindbergh decided on a single-engine plane. The *Spirit of St. Louis* was built by the Ryan Company in 60 days and cost only $10,580.

The *Lone Eagle* shared the credit for the New York to Paris flight with his aircraft. Thus his account of the crossing which was published right after the flight was titled *We*. In his later book, *The Spirit of St. Louis* (1953), he wrote that the airplane seemed "to form an extension of my own body, ready to follow my wish as the hand follows the mind's desire — instinctively without commanding." At the end of the flight, Lindbergh wrote: "*We* have made this flight across the ocean, not *I* or *it*."

Lindbergh

In Lindbergh's praise for the *Spirit of St. Louis* there was a clear expression of the image of Bellerophon and Pegasus, the horseman and his steed, flying in the service of sea-air aviation. Lindbergh's flight had been no easy triumph. He had to battle sleepiness, bad weather that brought icing to his aircraft's wings, difficult navigation, and the constant worry of engine failure. Yet he and his aircraft had slain all these monsters of transoceanic flight.

Although Lindbergh received the greatest public acclaim of any trans-Atlantic flyer, his solo flight from New York to Paris was not the only historic transoceanic flight. Others also helped to advance the state of sea-air aviation in the 1920s and 30s. Lindbergh's rivals, for example, made notable long-distance over-ocean flights. Charles A. Levine, owner of the single-engine *Columbia* monoplane that Lindbergh had wanted to buy, flew with pilot Clarence Chamberlin from New York to Bishoforode, Germany, a distance of about 3,905 miles, in just under 45 hours. Chamberlin and Levine had wanted to fly to Berlin, but when they arrived over Europe, they were unable to determine their position accurately. Eventually they ran out of gas and landed, on June 5, 1927, in a pasture 110 miles from the German capital.

Later in June, Cdr. Byrd and his crew of four took off for Europe in the trimotor *America*. Byrd knew, of course, that Lindbergh and Chamberlin and Levine had made the sensational flights, but he conceived of the flight of the *America* as the prototype for future commercial aviation service between the United States and Europe. *America* was about three times the size of either the *Spirit of St. Louis* or *Columbia* and weighed about 15,000 pounds. It was fitted out with radio and the latest navigational instruments. Thus it was well-designed for testing the possibilities for future commercial transport.

America left New York at dawn on June 29th. All the way across the Atlantic the plane encountered rain and fog, which hampered accurate calculation of its position. Although their destination was Paris, Byrd and his crew were not able to find the French capital in the 75-foot ceiling on the night of June 30. Finally when their gas got low, they landed the plane safely on the ocean not far from Caen.

After these flights of June 1927, aviators turned their attention to conquest of the North Atlantic from east to west. This was the more difficult flight because the pilot and aircraft would be battling the prevailing west-to-east winds during the entire flight. These winds would seriously reduce the speed of any aircraft, thereby requiring the plane to carry a greater fuel load. The first nonstop east-to-west crossing of the North Atlantic was on April 12-13, 1928. Two Germans, Herman Köhl and Baron von Huenefeld, and an Irishman, James Fitzmaurice, flew the *Bremen*, a single-engine, low-wing monoplane of all-metal construction, built by Junkers, from Baldonnel, Ireland, to Greenly Island, Labrador. These flyers had hoped to reach New York but ice, wind squalls and snow used up their fuel, forcing them to land on the ice and snow of Labrador after 36½ hours in the air. Two years later, in September 1930, Dieudonné Costes and Maurice Bellonte duplicated Lindbergh's flight in reverse. They flew a single-engine aircraft, the *Point d' Interrogation (Question Mark)*, from Paris to New York, arriving before a crowd which included the *Lone Eagle*.

To be continued

touch and go

MAP and SOS

Maritime Air Patrol flights (MAPs) are usually not considered one of the more exciting missions of a patrol squadron. Twenty to thirty isolated islands and atolls, along with the hundreds of square miles of ocean in between, are thoroughly examined for any signs of distress, damage or territorial violations on the monthly flights. A MAP flight crew must be prepared for any situation, because immediate emergency assistance is its responsibility. It may take hours before a rescue ship can be diverted.

Therefore, when members of VP-1 Crew 4, commanded by Ltjg. Bill Perlmutter, left on an early morning MAP flight from NAS Agana they were well prepared, yet expected another long and uneventful flight.

But this one was to have more than enough excitement. About a third of the way through the flight, roughly 360 miles southeast of Guam, the crew flew over Olimarao Atoll, two islands within a mile of each other, briefed as being deserted. Crew members were surprised to see people moving about on the beach of the smaller island and decided to make a second pass. This was when they noticed that the people on the island had stamped out an SOS in the sand.

Then a pass over the larger island revealed more people with an SOS and "SOS food" stamped out there. Crew 4 used the limited resources at its disposal.

First, a sonobuoy container with most of Crew 4's inflight rations and instructions on the use of an emergency communications sonobuoy were dropped. (Every Navy P-3 carries a sonobuoy which allows one way communication between the buoy and a receiver.)

Using the gear, the marooned people told Crew 4 they had been trapped on the atoll for two weeks due to bad weather and that they were in desperate need of food, medical supplies and cigarettes. Crew members signaled they understood by lowering the landing lights, then made another pass, this time dropping first aid kits (from the flight crew's personal survival vests). After verifying that they had been picked up, crew members notified the proper authorities.

As Crew 4 departed the atoll to continue its MAP, it heard, "Navy aircraft, Navy aircraft, thank you very much. We see you, we are smoking your cigarettes. Thank you."

Lieutenants junior grade Perlmutter, Powell, Corrigan and Gochicoa, Ens. McLeigh, AE1 Massengill, AMCS Taylor, AWC Martin, AWANs Benefield and Cardona, AW2 Martin, AT2s Nelson and Przybylski and AO2 Stevens will tell you that *some* MAP flights are exciting.

NAVAL AVIATION NEWS letters

Airships

With the passing of VAdm. Charles Rosendahl, a leading figure in the Navy's airship era, *Naval Aviation News* might be interested to know that two other LTA veterans who survived the wreck of USS *Shenandoah* passed on recently.

Chief Rigger John F. McCarthy was one of the seven men in the forward section of the airship that was torn off in turbulence and free-ballooned for an hour before being brought down 12 miles from where the aft two-thirds fell. McCarthy was thrown out of the bow section, and it took months for him to recover from the serious injuries sustained from the fall to the ground, a half-mile before the section was successfully grounded. I met 82-year-old Mac in Caldwell, Ohio, and he was most helpful in updating identifications of crew members for the second revised edition of *Shenandoah Saga*. He died at a Florida hospital May 13, within hours of RAdm. Rosendahl's passing, on May 14.

Commander Roland G. Mayer was instrumental, on that bizarre flight of the bow of *Shenandoah*, in *free-ballooning* the section to a safe landing. He later saw service aboard *Akron* and *Macon*. He died at the age of 84 in Fort Worth, Texas.

LCdr. Frederick Tobin, USN(Ret.), who was in the aft part of *Shenandoah*, had a successful career in the aircraft industry and helped Roland Mayer build bombers for WW II before entering the Navy during that conflict. Tobin is leading an active retirement in Fort Worth and is now the last survivor of that September 3, 1925, flight.

Thom Hook
Ferry Farms
Annapolis, Md. 21402

Ed's Note: Hook has written two books on naval airships, published by Airshow Publishers, Annapolis, Md. 21402.

Harmon Trophy

On page 3 of your June issue is a brief announcement concerning LCol. H. Fix winning the Harmon Trophy. The item, I'm sure, was condensed from previous published announcements. Unfortunately, all credit for evacuation of the 5,000-plus personnel was given to LCol. Fix's squadron, HMH-463. This is far from correct. There were five Marine helicopter squadrons involved, plus 10 CH/HH-53s from the USAF. The squadrons involved were HMH-462 (which, incidentally, flew the first wave into both Phnom Penh and Saigon), HMH-463, HMM-165, HML-367 and HMA-369, plus the USAF helicopters. The credit belongs to all.

George P. Slade, LCol., USMC
Office of Naval Research
Arlington, Va. 22217

NAF

I enjoyed the article in the April 1977 issue regarding the life and character of Captain Dick (Holden C.) Richardson. I served with him on several occasions — in BuAer and at the Naval Aircraft Factory, Philadelphia — and flew with him on sundry occasions. He was always kind and considerate of his colleagues and I felt he was truly unselfishly dedicated to Naval Aviation.

The leading engineering figures in Naval Aviation in World War I were Westervelt and Richardson, USNA 1901, Coburn, '04 and Hunsaker, '08. Commander Coburn was brought in at the time of the creation of the Naval Aircraft Factory in 1917 and served as manager until some time after the end of the war. He was followed by Commander Westervelt, another management and organization expert.

Commander Hunsaker was the engineering and design genius in the Bureau of Construction and Repair in Washington, then charged with naval aircraft development. All four deserve credit for the record NAF made.

Enclosed is a morale bulletin we published in 1945 showing that WW I performance. A few months later, we published another bulletin showing the work accomplished during WW II. President Franklin D. Roosevelt, in his last political campaign in 1944, drove into the yard where leading civilian supervisors at NAF were introduced to him in front of the Flight Office. With a wave of his hand, he said, rather proudly, "You know I invented this place."

The time between the wars was featured at NAF by the *Shenandoah*, LTA; aluminum alloy construction which included large twin-engine flying boats; several experimental airplanes; small production of various airplanes, floats, parachutes and spares; overhauls of all types; and the new training planes, N3Ns, etc.

Donald Royce, RAdm., USN (Ret.)
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Ed's Note: The first bulletin referred to summarized the early history of NAF: authorized by SecNav Josephus Daniels on July 27, 1917; building contracts awarded August 6, 1917; ground broken August 10; first order for 50 H-16 flying boats received November 20, 1917; first H-16 flown March 27, 1918 — 4 months and 7 days after the contract was received, 7 months and 17 days after the ground breaking and 8 months from the day the construction of the facility was authorized. And by April 16, 1918, two H-16s were ready for shipment to England; by October 1, NAF had produced 183 H-16s and F5Ls, and 4 experimental airplanes.

The second memo took a look at what the men and women at NAMC (formerly NAF) contributed to winning the war, from the start of the emergency in 1939 to the surrender of Japan six years later:

156 PBNs, 816 N3Ns, 104 TDNs, 300 OS2Ns, and 30 SBNs, more than 1,400 airplanes and their spare parts. More than 50 PBYs, JRFs, J2Fs and J4Fs overhauled. More than 1,300 engines manufactured; more than 2,500 reconditioned. More than 5,000 propellers and 6,000 blades overhauled. Over 30,000 parachutes, 2,820 JATO kits and 5,000 spares, 9,250 daylight viewers, 3,530 radar housings, 5,700 Army catapult hooks, 299,000 tow-target sleeves, 4,000 tow-target reels and 4,700 catapult sheave wheels fabricated and assembled. Almost 1,000 launching cars designed, produced or overhauled. Hundreds of aircraft modified, hundreds of various modification kits delivered, carloads of catapult and arresting gear material shipped — all for the fleet. Thousands of tests performed on airplanes, instruments, radios, materials, engines, accessories, aviators' gear, cameras, fuels and lubricants.

Highly classified projects with code names such as Bat, Pelican, Cadillac, Drone, Loon, Lark, Little Joe, Gargoyle, Gorgon, Glomb, Glimp and Projects Dog, George and Fox were developed to surprise the foe and help save the lives of our men in battle.

MiGs

I am preparing a book for Squadron/Signal Publications on the MiG killers of the Korean War. The title will be *MiG Alley—200 Miles* and will be similar to Lou Drendel's book, *And Kill MiGs*, which covered the war in SEAsia.

I am seeking photos and interviews with Navy and Marine pilots who had MiG kills in Korea. I hope some of your readers can come to my aid.

Larry Davis
Squadron/Signal Publications
4409 12th St., S.W.
Canton, Ohio 44710

Flight Gear

I am a 15-year-old prospective Navy pilot who has been interested in military aviation for a long time. I have started a few collections of military aviation over the last few years. I have written this letter for two purposes.

First, I would like to thank all the squadrons which sent me squadron patches and photos of their aircraft. The public affairs officers were especially helpful, as were individual squadron members.

Second, I am now starting a collection of photographs of pilots in flight gear to show the changes in flight equipment through the years. I would be very grateful if any pilots or squadron personnel, active or retired, would send me photos of pilots or aircrew in flight gear, which they no longer want. I would like to cover as large a time span as possible, early Naval Aviation to the present.

Kolin Campbell
Rural Route #1
Miltonvale, Kan. 67466

Help!

Your past issues have been invaluable to those like myself who find enjoyment in researching the history of Naval Aviation. Please keep up the fine quality and thank you for the enjoyable moments you pass on to all of us.

I would like to ask your readers' aid in two matters. The first concerns a book I am researching on the Allison T-40 turboprop engine and the eight aircraft which utilized this power plant. Six of the eight were Navy projects of the late Forties, early Fifties. They included the Convair XP5Y, R3Y *Tradewinds*, XFY-1 *Pogo*, Douglas XA2D *Skyshark*, Lockheed's XFV-1 and the North American XAJ *Savage*. The two Air Force projects were the XF-84H which had early Navy backing and the Hiller X-18.

I would like to correspond with anyone who was associated with these projects and feels their information would contribute to the overall story. Particularly helpful would be the project officers, pilots or engine maintenance personnel, and anyone who served with VR-2 while it used the R3Ys on the Alameda-Hawaii shuttle.

If anyone has a collection of old *Naval Aviation News* they wish to part with, I will be glad to negotiate with them.

Richard C. Koehnen
P.O. Box 6
Rosemount, Minn. 55068

History

As public affairs officer for VP-19, I am asking your readers to aid in amplifying the squadron's early history.

Our command history, handed down for many years, states that VP-19 originated as VPB-907 at NAAS Livermore, Calif., in 1946. In December 1946 the squadron was redesignated VP-871 and was relocated to NAS Oakland. In January 1953 the squadron was designated VP-19.

I would like to hear from any readers who were members of, or who were associated with, the squadron during the 1946-1953 period and who can shed additional light on our early squadron history.

James S. Cooper, Ltjg.
PAO, VP-19
FPO San Francisco 96601

Night Traps

The Tailhook Association is trying to locate the pilot and NFO with the most night carrier arrested landings (traps). Also, it is trying to determine the Air Force and Marine pilots and NFOs with the most night traps. If you qualify or know someone that may, contact:

Robert L. Lawson
Editor of The Hook
5126 Central Avenue
Bonita, Calif. 92002
Phone: 714-479-8896

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NAVAL AIR TRAINING COMMAND

U.S. MARINE CORPS

U.S. NAVY
U.S. MARINE CORPS

NAVAL AIR RESERVE
MARINE AIR RESERVE

Skyhawk Line Up					
XA4D-1	U.S. Navy/ Marine Corps	A-4H	Israeli AF	A-4M	U.S. Marines
A4D-1(A-4A)		TA-4H		A-4N	Israeli AF
A4D-2(A-4B)		TA-4J	U.S.Navy/ Marine Corps	A-4P	Argentine AF (revised A-4Bs)
A4D-2N(A-4C)		A-4K	New Zealand AF	A-4Q	Argentine Navy (revised A-4Bs)
A4D-5(A-4E)		TA-4K		A-4S	Singapore AF (revised A-4Bs)
A-4F, TA-4F		A-4L (revised A-4Cs)	U.S. Navy/ Marine Reserves	TA-4S	
A-4G	Australian Navy			A-4KU	Kuwait AF
TA-4G				TA-4KU	

2,960 Skyhawks have been or are being built under contract as of September 1977.

U.S. NAVY
U.S. MARINE CORPS

ISRAEL AIR FORCE

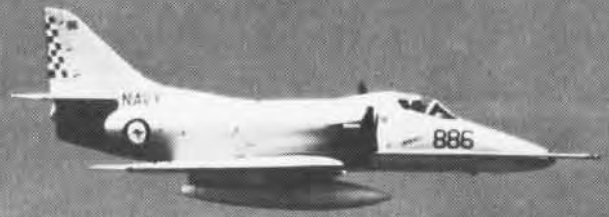
skyhawk

U.S. NAVY BLUE ANGELS

SINGAPORE AIR FORCE

ROYAL NEW ZEALAND AIR FORCE

ARGENTINE AIR FORCE



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Naval Aviation
NEWS