

NAVAL AVIATION

NEWS

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NAVAL AVIATION NEWS

Vice Admiral Thomas F. Connolly
Deputy Chief of Naval Operations (Air)

Rear Admiral Frederick H. Michaelis
Assistant Deputy Chief of Naval Operations (Air)

Captain Paul Jayson
Head, Aviation Periodicals and History Office

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THE STAFF

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Izetta Winter Robb	Managing Editor
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■	
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LCdr. Neil F. O'Connor	Contributing Editors
JOC John D. Burlage	
Harold Andrews	Technical Advisor

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COVER

For the front cover, Ralph Payne suspends action aboard USS America as bow catapult officer Lt. Robert C. Leslie signals a pilot. Behind him is a deck console operator.



RED CARPET WELCOME

After a journey of 4,000,000 miles, 11 days and 163 revolutions, the Apollo 7 space mission came to a successful conclusion the morning of October 22. On the deck of the USS Essex, commanded by Captain John A. Harkins, a red carpet was rolled out for the astronauts: (left to right) Walter Cunningham, Donn Eisele and Walter Schirra. Beside Schirra is Dr. Donald Stullken, NASA representative.



NAVAL AVIATION NEWS

NavAirPac E's are Announced Carriers, Squadrons, and Units Named

Vice Admiral Allen M. Shinn, ComNavAirPac, has announced the Pacific Fleet Air Force Battle Efficiency Awards for the 1967-68 competition.

USS *Coral Sea* (CVA-43) was named best in the attack carrier category, and USS *Kearsarge* (CVS-33) took the top honor for support carriers.

Squadrons winning E's were: VP's 1 and 19, VF's 143 and 211, VA-113, HS-4, VS-37, VAW-114, and VAH-4.

Awards to departments of aircraft carriers included: operations — *Coral Sea* and *Kearsarge*; communications — *Coral Sea*; air — *Kitty Hawk* (CVA-63) and *Bennington* (CVS-20); engineering — *Enterprise* (CVAN-65); weapons —

Kearsarge; supply — *Ticonderoga* (CVA-14) and *Hornet* (CVS-12).

When he announced the winners, VAdm. Shinn said, "The competition was very close, and several winners were selected by very narrow margins. Congratulations and Well Done to all hands of the winning units and those who provided such tough competition."

Test Pilot Graduation is Held Twenty-One Complete their Studies

The U.S. Naval Test Pilot School held a graduation exercise in October at the Naval Air Test Center, Patuxent River, Md., for 21 students who had completed eight months of demanding academic and test flying instruction: 14 test pilots, two naval flight offi-

cers and five flight test engineers.

The graduating class (Class 50) was composed of U.S. Navy, Marine and Army aviators, Navy flight officers, a Royal Navy officer, Canadian officers, and civil service engineers. Their diverse pilot backgrounds included fighter, attack, ASW, helicopter, and early warning experience.

Maj. James J. Satterwhite, USA, was honored as the Outstanding Student in Class 50. He received a commemorative plaque sponsored by the Patuxent River Council of the Navy League.

Captain R. P. Prichard, USN, the newly appointed director of the school, officiated at the ceremony, and Rear Admiral H. L. Miller, Commander, NATC, delivered the address prior to presenting the diplomas.

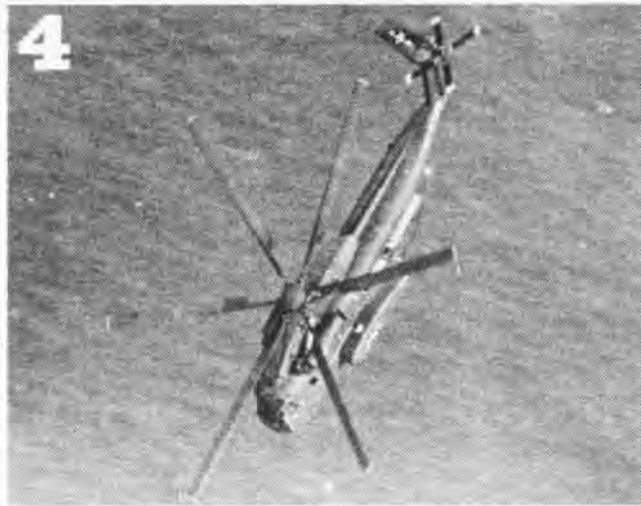
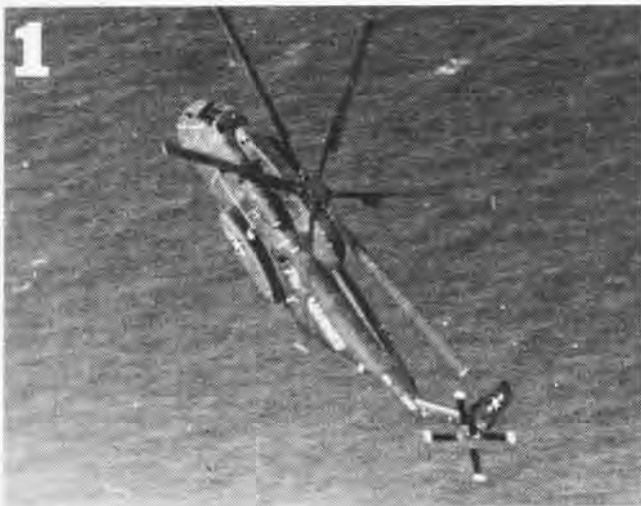
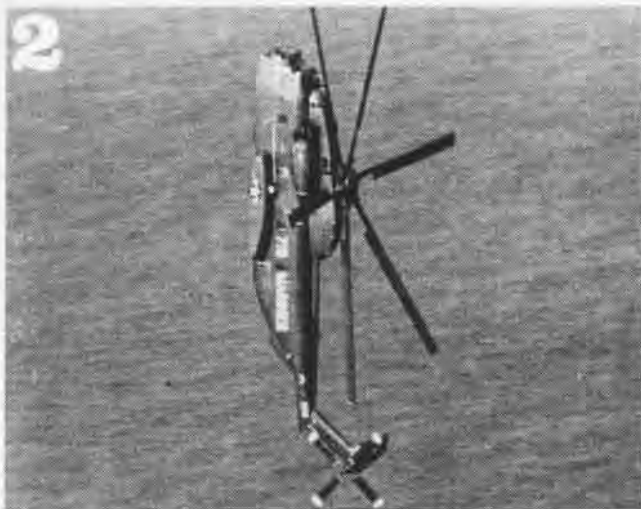
Those graduating from the Engineering Test Pilot Course were: Lts. Russell J. Henry, USN, Marshall N. Jackson, USN, Roger W. Kisiel, USN, Thomas N. McDowell, USN, Paul S. Norton, USN, Maj. William C. Ryan III, USMCR, Maj. William J. Scheuren, USMC, Lieutenant Colonel Dennis M. Boyle, USA, Majors Donald E. Hendrickson, USA, and James J. Satterwhite, USA, Lts. Nicholas H. Browne, RCN, and Allan L. Tarver, RN, Mr. E. R. Emerson, and Mr. Hilton L. New.

Graduates from the Engineering Test Flight Officer Course were LCdr. Lyle E. Littlewood, USN, and Lt. John F. Thuente, USN.

Those graduating from the Test Project Engineering Course were Captain Francis B. Driscoll, RCAF, Mr. Roger V. Goodson, Mr. John J. McCue, Mr. Lawrence A. Thomas, and Mr. Robert L. Traskos.



REAR ADMIRAL Leroy V. Swanson, ComCarDiv Two, presents a plaque to commemorate the visit of Vietnamese Defense Minister Nguyen Van Vy, a lieutenant general in the Republic of Vietnam army. The handshake is more than a symbol of friendship; it marks the presence of about 5,000 men embarked aboard the attack carrier, the USS *America* (CVA-66), operating with the 7th Fleet off Vietnam. The Norfolk-based ship arrived on Yankee Station last May 30.



A CH-53A Sea Stallion flies through a loop in this picture series taken during tests to investigate the helicopter's maneuverability characteristics. The CH-53A, the largest and fastest helicopter in production in the Free World, performed a series of loops and rolls over Long Island Sound in unprecedented maneuvers for a helicopter of

its size. This was authorized by the Navy on a one-time basis. The helicopter is the type used by Marines in Vietnam for cargo and troop transport. Pilots for the test were LCol. Robert P. Guay, USMC, and Byron Graham, Sikorsky experimental test pilot. The flight was part of a Naval Air Systems Command/Sikorsky program.

Marines Honor Vietnam Veteran Maj. Althoff Gets Cunningham Trophy

A Marine major, winner of three Silver Stars, three Distinguished Flying Crosses, and 50 Air Medals in Vietnam, has been named the 1968 recipient of the Alfred A. Cunningham Award, signifying his selection as "Marine Aviator of the Year."

Maj. David L. Althoff, who is now attending Arizona State University, Tempe, under the College Degree Program, received the trophy during the annual reunion of the First Marine Aviation Force Veterans' Association in October.

During the period covered in the award, Maj. Althoff completed 1,000

combat and combat support missions in Vietnam while serving successively as operations officer, executive officer and detachment officer in charge of Marine Medium Helicopter Squadron 262.

The citation honors Maj. Althoff "as a dynamic leader of men in combat" and recognizes him as an "innovative, imaginative air tactician of the first order with extraordinary aeronautical ability." It states that "his development of fixed-wing tactical jet, helicopter gunship, and helicopter transport time sequences and delivery techniques... made a signal contribution to the survival" of the Khe Sanh outpost.

One of the early winners of the award was Col. John H. Glenn, USMC.

Navy Gets First Five TH-57A's New Primary Light Training Helos

The Navy has accepted the first five TH-57A helicopters from Textron's Bell Helicopter Company in Fort Worth, Texas. Forty have been ordered for delivery this year.

Rear Admiral Dick H. Guinn, CNABATra, accepted the Navy version of the 206A *JetRanger*. This new, primary, light turbine, training helicopter with dual controls will replace Bell TH-13M's.

Powering the trainers is a 136-pound, 317-horsepower Allison 250-C18 engine. In addition to two pilots, the TH-57A retains space for three passengers as provided in the civil *JetRanger*.



GRAMPAW PETTIBONE

Wormy Day

It was a re-fly of an instrument hop in the TA-4F from the replacement instrument training squadron at one of our master jet air stations. The briefing was short but complete. The lieutenant second-tour instructor and the lieutenant (junior grade) replacement pilot (RP) left the ready room at 1240 to man their aircraft. Start, pre-taxi procedures, and instrument checklist were normal, and clearance was obtained for takeoff. On the runway, takeoff checklist and manual fuel check were completed at 85%. At 100% for takeoff, engine instruments were normal and the pressure ratio reading of 2.28 was good. The instructor gave the controls to the RP under the hood in the back seat at 80 knots. He made a normal instrument takeoff, climbing out to 1,000 feet, three miles, at 300 knots.

Departure control was contacted and clearance received to continue climb to Flight Level 240. Power was added and the aircraft accelerated to 330 knots. At 5,000 feet, there was a loud bang. The instructor's first impression was that the emergency generator had somehow been deployed; the RP thought they had hit a bird. The aircraft immediately lost power, and the instruments started to unwind. The RP popped his hood while the instructor took control, deployed the emergency generator, and switched to guard channel on UHF.

They were now six to seven miles west of the air station, heading south. IFF was switched to emergency, and the instructor noticed that oil pressure was 20 psi with rpm and fuel flow 30% and 800 pph, respectively. There were no indications of fire. As they zoomed to 6,300 feet, slowing to 200 knots, the instructor noted that they were in an excellent position for a flame-out



approach to runway 09. Because he had practiced flame-out approaches at least once a week, he decided to stay with the aircraft.

By this time, the throttle had been brought to *off* and preparations made for an airstart. After he had hit the igniters and brought the throttle around the horn to idle, the engine did not respond. A second attempt also failed, with the engine instruments remaining as originally noted.

The tower was notified of the pilot's intent to make a flame-out approach to runway 09R. As the pilot maintained an airspeed of 200 knots, the turn toward the field was completed. The RP started calling off altitudes, and it looked as if they were well set up for a landing. At 1,500 feet and approximately one to two miles from the runway, the gear handle was lowered, the doors opened, and the gear fell normally. The mains indicated safe, but the nose gear remained barberpoled. The pilots smelled smoke. The fire warning light then came on, and the landing gear went unsafe.

As the pilot was starting his flare to land, he noted fire in his right rear view mirror, and heard the tower say on *Guard*, "Aircraft on short final runway nine, drop your gear." At this point, the lieutenant decided they had better eject.

As they touched down, the starboard main landing gear collapsed. The instructor transmitted to the RP to eject and immediately pulled the face curtain with his right hand.

The following statement in the pilot's own words completes the story: "For an instant I thought the seat would not work because it took so long to eject me, this, of course, being the delay while the rear seat pilot exited the aircraft. When I finally did eject, I remember comparing the sensation of the ejection seat trainer, saying to myself that this was easier and smoother. As I was still going up, I let go of the face curtain and saw the plane go underneath me, to my left, on fire. I was tilted over on my right side, feet high. I felt the seat separate, and the next thing I knew the parachute opened, bringing me upright in a hurry. I saw the RP land over to my right and his chute land on top of him. I said to myself, I'd better pull the D ring. I did and threw it away. I then thought I'd better position myself for landing.

"Upon impact, I was in a left to right drift and touched down on my right foot. I immediately felt a sharp pain in my right foot and promptly sat down on my seat pan. I sat there for a few seconds, took off my oxygen mask and helmet and laid them by my side. The RP came running over to me from my right and asked if I was O.K. I knew my right foot was broken, so I lay down until the ambulance came with a stretcher.

"At the dispensary they took x-rays of my ankle, foot, and spine, gave me

ILLUSTRATED BY *Osborn*

a pain-killing shot, put me in a cast, and released me. I arrived home at 1615 after a very eventful day."



Grampaw Pettibone says:

Great land o' Goshen! The Lord was on their side that day. That instructor was a real pro. By the book, 1-2-3, fast thinkin' and all that, but it just wasn't in the cards to save the bird. These ground-level ejection seats are really jewels.

On the Runway, Please!

It was a routine winter ASW patrol in the North Atlantic for the SP-2E *Neptune* and a crew of 12. The mid-morning takeoff was in the rain with IFR conditions existing all along the coast. The flight proceeded via airways to "on station," and the patrol was uneventful for about seven hours until the #1 AC generator trip light came on. Attempts to reset the generator were unsuccessful and the lieutenant (aircraft commander) elected to disconnect the constant speed drive unit. Positive indication of disconnect was not observed; however, both pilots were satisfied that the unit had disconnected and decided not to feather the engine.

As the aircraft headed for home, the Fleet Air Wing OpCon Center was advised of the problem. Forecast weather at home base was for 300-foot ceiling and one mile visibility with snow, sleet, and rain at their arrival time. Weather at an Air Force base

about an hour closer was reported as a 200-foot ceiling with 3/4-mile visibility. Because it was closer with longer runways and no icing, coupled with the questionable status of the aircraft systems, prudent judgment dictated a landing there vice home base.

Upon crossing the coastline, the air traffic control center cleared the flight direct to the Air Force base. Approach vectored them for GCA final. The crew completed approach and pre-landing checklists, reported ready for landing, and the GCA precision approach commenced routinely.

At five miles, the landing gear was lowered and landing checklist completed. All persons were in normal ditching stations except the plane captain who was in the jump seat between the two pilots.

Descent on the glide slope was described by the copilot as being made in "heavy turbulence." Although staying on course, the aircraft started low and remained below glide path throughout the approach. At approximately two miles from the runway, the flight became dangerously low and was given a waveoff by the GCA controller.

The pilot added power to the reciprocating engines and raised the landing gear while the copilot added throttle to the jet engines. The *Neptune* then leveled off and came to within 15 feet

of the glide slope before again dropping dangerously low and striking the ground 4,400 feet short of the runway.

As the large aircraft grumbled to a stop, both reciprocating engines burst into flames. The pilot yelled for the crew to abandon ship and the nine men forward exited through the overhead and pilot's hatches. The remaining three crewmen exited aft through the side windows.

All were quickly accounted for, eight of them suffering minor injuries. The plane was soon completely destroyed by fire.

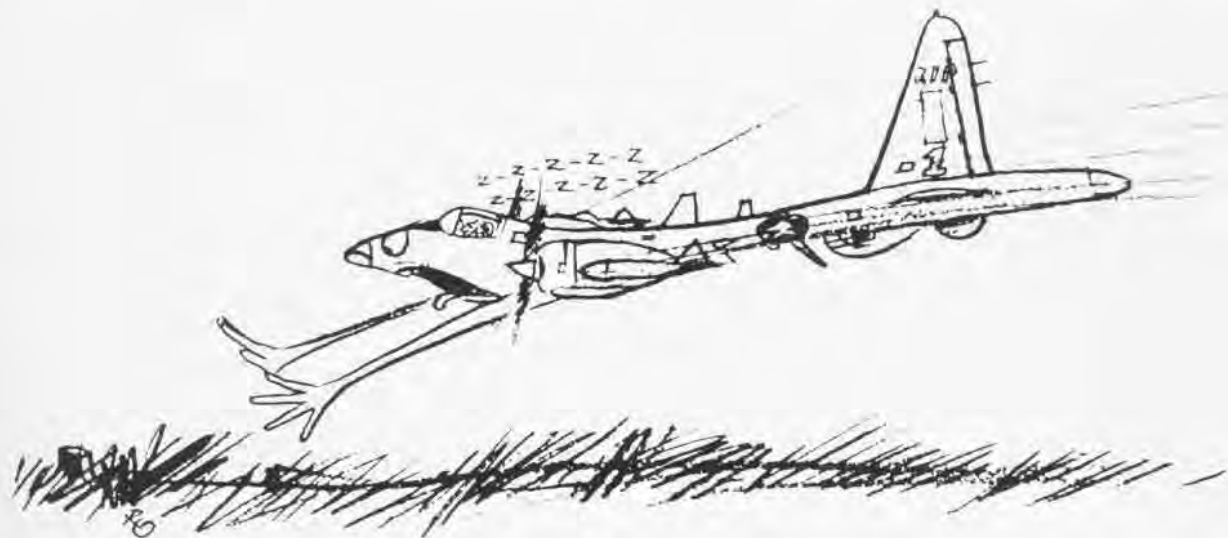


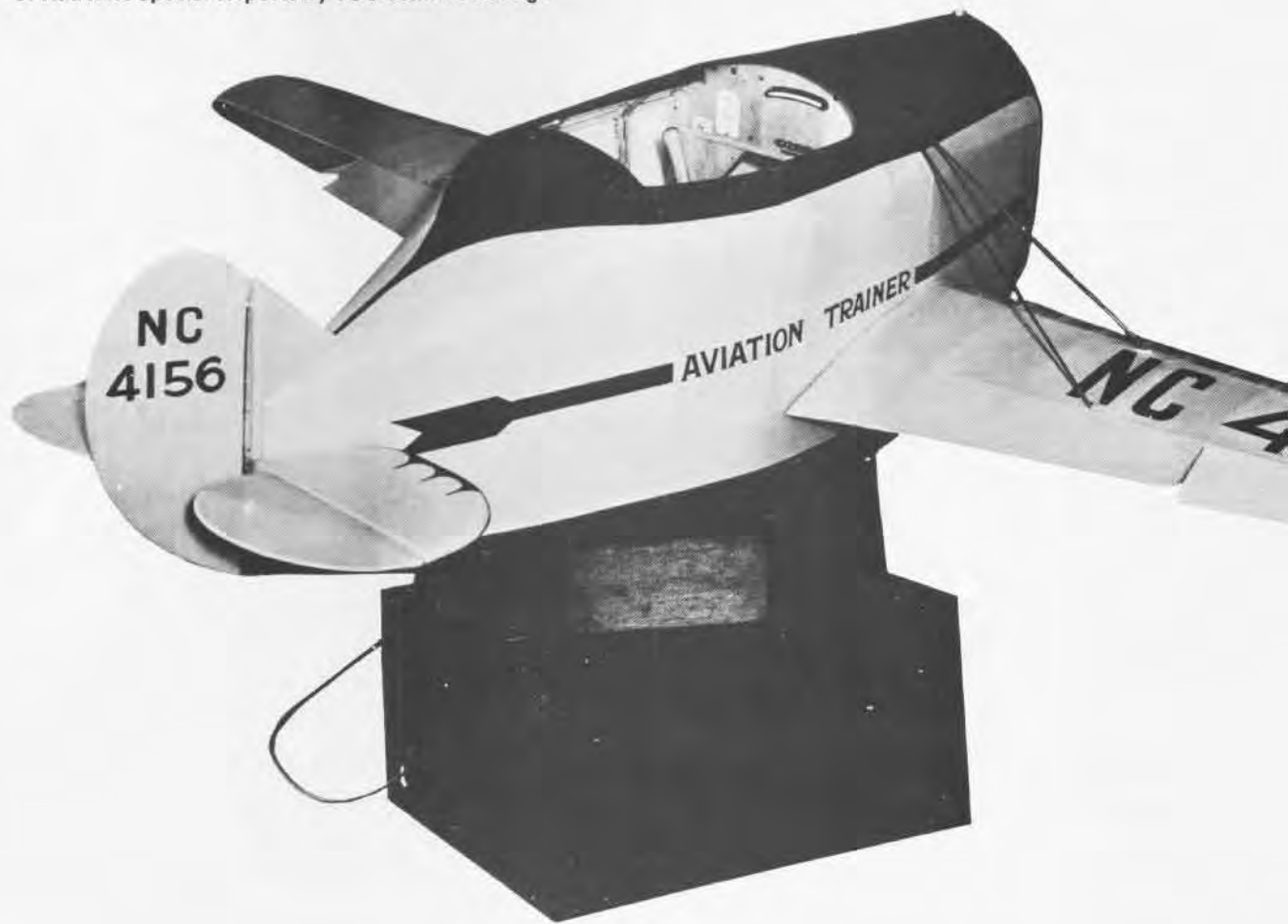
Grampaw Pettibone says:

Great balls o' fire! That's exactly what this'n turned into! Just can't figger out what was goin' on in that cockpit during the waveoff. Not much, I'd say. The pilot got in over his head with no one to help him out. Seems the copilot was watchin' the lights go by instead of helpin' his boss. "It takes two to tango" with one of these big birds. That's why they put two guys in the cockpit.

The rest of the crew, except for the plane captain, owe their survival to being strapped into their ditching stations during the crash. All were wearing proper survival and exposure gear, thank you. The plane captain was just plain lucky. Reminds me of a poem:

Ditching stations are designed for
Those who care enough to pine for
Family, friends, and fancy ways
To use those extra happy days.





Original Link trainer (top); modern Link 2B21 system (above) with four independent cockpits operated from one computer; student pilot in trainer (right).

From 'Pilot-Maker' to MULTIMILLIONAIRE

Although the U.S. Navy first made real use of the advantages of training devices in World War II, there had been earlier dealings between the sea service and the man who is credited with being the first to build a working flight simulator. This is the story of that man and the major industry he created.

Building flight simulators for both civil and military aviation training has become the basis for a highly competitive, multimillion-dollar industry that occupies the time of thousands of persons who work for both small firms and some of the giants of corporate aviation.

Even so, there is one name that still stands out whenever the subject of aviation simulation training comes up: Link.

As far as Naval Aviation is concerned, the number of past and present Navy pilots who have received at least part of their flight indoctrination in Link trainers runs into the tens of thousands. And most of those who have never "flown" in Link trainers have heard of them.

That's understandable, because the gentleman who is generally credited with planting the seed that grew into today's vast flight simulator industry is named Edwin A. Link. In the years that have passed since he built his first "pilot-maker" in 1929, the company he founded has supplied trainers by the thousands to the Navy and the other armed services, and to civil aviation as well.

Edwin Link was another of that breed of early aviator who cut his eyeteeth on flying in the days when aviation training was as expensive as it was casual. Young Link spent most of his spare time, and what money he

could afford, learning to fly at the Binghamton, N.Y., airport. Eventually, he became a qualified flight instructor who flew his own airplane.

But he remained concerned about the high cost of training which, he felt, was keeping many flying enthusiasts out of airplanes. Flight time sold for \$25-\$50 an hour in many places — quite a tidy sum in the 1920's.

Link went to work trying to figure out a way to take some of the financial bite out of learning to fly. The result of his effort was that first pilot-maker, which he built among the player pianos and organs in his father's organ factory.

Link made good use of the equipment at hand. A description of his pilot-maker says that it consisted of a stubby, wooden fuselage with the cockpit mounted on organ bellows he "borrowed" from his father's factory.

The bellows were operated by an electrically-driven vacuum pump that caused the fuselage to pitch and roll as the trainee "flew" Link's creation. This he did by means of a conventional stick and rudder bar that enabled him to control the trainer the same way he would control an airplane. A simple valve mechanism connected stick and rudder bar to another bellows; when the flight controls were operated properly, this second bellows offset the "air turbulence" that buffeted the trainer so that

it remained on an even keel.

It was quite a gadget, and it was soon being used in the flying school Edwin Link and his brother George operated. It became a major contributor to a "learn-to-fly-for-\$85" offer the Links were able to make to prospective clients. Similar courses offered by other flight schools averaged \$20 an hour or more.

Evidently, Edwin Link thought enough of his creation to try to put it on the market. He even went so far as to install a mechanism in his trainer that permitted it to accept coins. This made it work exactly like those coin-operated hobbyhorses and rocket ships that still abound in penny arcades and five-and-dime stores: You put in your dime and your child gets a ride until the gizmo shuts off automatically.

"A standard part of the trainer was an 'efficiency indicator' with a dial numbered from 0 to 15," according to one historian. "The device scored a point against the operator, up to a possible 15, each time the trainer left the level flight attitude. The degree of efficiency or progress could be determined accordingly."

What it all meant was that Link's pilot-maker, which was to help revolutionize aviation training methods, had been relegated to a position roughly equivalent to a child's plaything. No matter. It didn't sell anyway. Well, that isn't exactly correct. It would be

more accurate to say Link's device didn't sell *immediately*.

Edwin Link lived what he later described as "a hamburger and hot dog existence" for a time, but not too many years passed before his trainer began to help make his name synonymous with aviation training.

Actually, Link flight simulators did not really begin to click until 1934 – after the entire Link family had been hard hit by the depression which closed the organ factory and forced Edwin Link to set up shop temporarily at Endicott airport.

Even so, Link archives indicate that there was some kind of turnover of the 1929 pilot-maker well before 1934 – and it was evidently in 1931 that Edwin Link began an association with the Navy which was eventually to become fruitful and multiply. That was the year a pilot-maker, the fourth unit built, was purchased by the Navy and delivered to NAS Pensacola, Fla.

Records of how this early Link trainer was used at Pensacola are as sketchy as descriptions of the device itself. Link archives indicate that it may have been delivered "less instruments." It was called, appropriately enough, an "Aviation Trainer."

One fact that does seem to assert itself where the Aviation Trainer is concerned, however, is this: Although it was the first of many hundreds Link would eventually manufacture for the Navy, it apparently did not by itself cause Naval Aviators to immediately come pounding on Link's door with requests for more of his devices.

Since historical records of the success, or lack of it, of the Aviation Trainer at Pensacola are scarce, there is probably no real way to tell if it received any kind of evaluation – or, if it did, whether the results of any tests were forwarded to naval officials. At any rate, Link archives indicate that several years passed before Edwin Link would again pick up the strings of the association with the Navy that began with the sale of the Aviation Trainer.

Even though his trainer business went into limbo during the early 1930's, Link was the true optimist. He figured it was only a matter of time until the orders would start rolling in. In the meantime, however, he still had to support his enterprise – and, of course, he also had to eat. In the depression years, that was no mean feat.

Link traded his flying ability for a few honest dollars. He serviced planes and gave flight instruction. He ran a feeder line. He flew charter flights, did stunt flying, and barnstormed the country selling rides. He was soon a graduate *cum laude* of the rugged barnstorming school.

When Endicott field closed, Link moved his "company" to Cortland, N.Y. At Cortland, it was a repetition of the Endicott routine – only on a much larger scale. He managed this airport, sponsored air shows, and added aerial advertising to his other activities. He invented an illuminated aerial sign and began contracting for commercial advertising. The advertising program paid off, but it meant night flying from unlighted fields in all

kinds of weather—rain, fog or clear.

Of necessity, Link became an instrument flying expert. His newly acquired experience in instrument flying was to help save the day for Link when the chance finally came for him to sell his aviation trainers.

Busy as he was trying to make a living, Link spent as much time as he could in the corner of the hangar where he had installed his trainer business. He used his knowledge of blind flying techniques to equip his simulator for instrument flight training. He also improved his basic design.

Then, with the help of a friend, WW I pilot Charles S. (Casey) Jones, Link succeeded one day in 1934 in arranging for a demonstration of his trainer for a group of Army Air Corps officers in Newark, N. J. Link was supposed to fly in from Binghamton, but on the day of the demonstration, Newark airport came up socked in by fog and mist.

The Air Corps group arrived at the airport, took one look at the weather, and figured that Link would never attempt the flight.

They were wrong. A small plane droned overhead just as the group was about to leave, then touched down on the runway. Link had made a successful flight to Newark on instruments. In a masterpiece of understatement, one Link biographer would later call it "a rare feat during those early days of aviation."

Link was only a demonstration away from receiving an Army Air Corps order for a group of his trainers. One record says the initial order was for six of the simulators, another says it was for ten instrument types the Air Corps wanted to use in the training syllabus for mail-carrying pilots who would be making flights in all kinds of weather.

The number really doesn't matter, however. The point is that the Air Corps order – and those that quickly followed it – helped Link finally get his flight simulator business off the ground.

Orders for the simulators meant growth for Link's company, of course, and growth meant organizational change. Link's original firm, the Link Aeronautical Corporation, continued its "fixed base operator" activities, while Link Aviation Devices, Inc., was organized to manufacture

Edwin A. Link's idea was to simulate flight training on the ground. It was only an idea, but with ingenuity and perseverance he put it to work and came up with the invention on which the whole flight simulation industry is founded.



and sell flight training equipment. The name of the new organization was changed a bit later to Link Aviation, Incorporated.

With the organizational alterations came expansion of plant facilities: In five years, the company outgrew two Binghamton factory sites and moved to a third location nearby, where it remains today. Employment soared.

The United States was just a little more than two years away from Pearl Harbor when the burgeoning Link Aviation, Inc., began to deal with the Navy again. As Link historian Ira F. Parker recounts it now, the Navy put in an order for Link-built simulators some eight years after the early Link trainer apparently failed to make its mark at Pensacola.

"On June 7, 1939," Parker recalls, "we shipped the first of 30 trainers to be delivered to the U.S. Navy that year. It was an E-Special, delivered to the U.S. Naval Academy, Annapolis, Maryland."

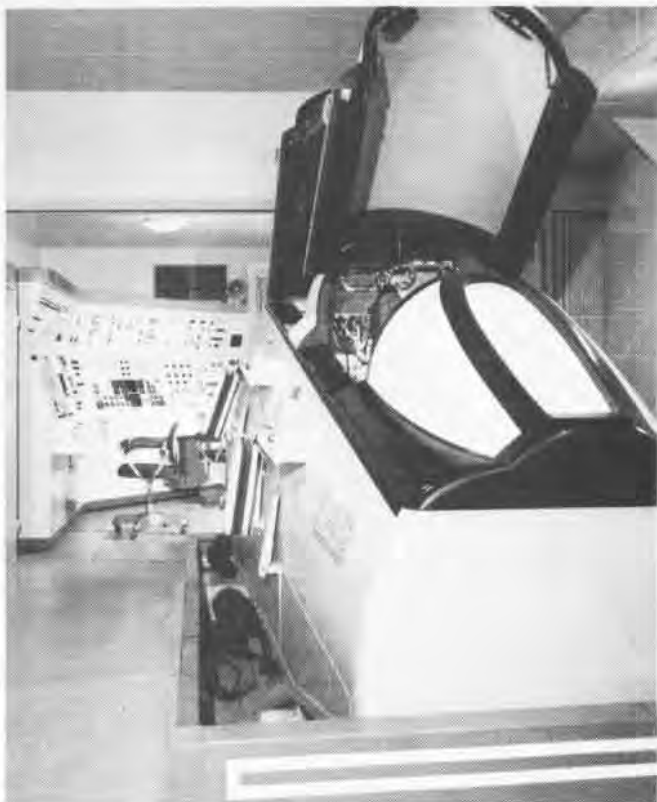
"E-Special" was the designator for a modified version of a basic Link instrument trainer of the period, the E model. Externally, it had the same general features as Link's first pilot-maker: a stubby fuselage with wings and tail gear mounted on a raised platform which contained much of the instrumentation that powered the device.

As could be expected, the E-Special was a much more complex piece of machinery. It had an enclosed cockpit, for instance, and certain models had access doors on the side of the fuselage. The fact that it could be closed up necessitated the addition of a ventilation system.

Instrumentation on the control panel paralleled that generally found in aircraft of the period (and in earlier Link-built trainers), but the E-Special had some instruments other Link devices did not: marker beacon indicator, radio compass, and cross-pointer indicator, for example.

Built into the trainer were automatic features that enabled it to duplicate such aircraft characteristics as a turn resulting from a bank, spin, and nose heaviness in a turn. Attached to the basic trainer by electrical cable was a control/monitor desk that came equipped with a plot board and other requisite gear.

Eruption of WW II and the Navy's increased interest in the use of training devices to prepare its officers and



The weapon system trainer shown above and below is for the USAF version of Navy's famed Phantom II. As one of today's Link products, it trains pilots and RIO's for their missions in the two-seat, all-weather fighter.



enlisted men for combat (*NA News*, September 1968, pp. 7-11) meant Link Aviation was on its way to becoming a prime contractor for Navy simulation equipment.

Soon the company's output was geared to meet the demands of war. In the field of flight simulation especially, the name Link became so closely intertwined with military training that servicemen began to use it in place of fancier terms for the equipment Link Aviation built. Regardless of its purpose, any piece of Link gear automatically was called "the Link Trainer."

As was the case with many of the hundreds of manufacturers also in the training device field at the time, the Link firm worked closely with the Special Devices Division of the Navy's Bureau of Aeronautics in the design and construction of trainers. Some of Link's devices were built by the corporation according to specifications laid down by the Special Devices Division, while many others were based on existing Link designs. A good many were also created by Link engineers.

Navy orders and those from the other armed forces sent Link production figures sky-high, right along with the rest of the industry. At one point, the 1,500 persons employed by the corporation were turning out one well-known device, the ANT-18 basic instrument flying trainer, at the rate of one every 45 minutes.

The Link trainers that were being built at such a prodigious rate went everywhere there was a need for them: They could be found at training commands, air stations, and other facilities — anywhere that military men were being trained. It has been conservatively estimated that more than half a million military airmen alone received at least part of their indoctrination in Link devices.

Link historian Parker says the type of aviation simulators Link built exclusively for the Navy or modified to meet Navy requirements included devices that helped train men in such fields as celestial navigation, air-plane intercept, flight control, tactical plotting, and radio and radar operation.

The end of WW II meant the end of the big Link building boom temporarily. The company was hit hard at first by the lull that followed

the war, but a combination of factors helped it revive:

- Link underwent an internal reorganization that brought in new executive blood. About the same time, a more dynamic policy was established for customer relations, and increased emphasis was placed on bidding practices and meeting production schedules.

- The firm lost no time moving trainer development into the breach caused by the advent of jet-powered flight and the fantastic advances being made in electronics. Link developed the first piece of ground training equipment ever built to duplicate the operation of a jet aircraft. This completely electronic simulator, the C-11, is generally credited with providing the technological foundation on which today's jet aircraft trainers are built. Link also later constructed what is called the world's first jet bomber simulator for the B-47B.

- The U.S. found itself in the middle of the Korean conflict. The need to train men to meet the demands of a new war, one that utilized far more advanced weapons than did WW II, again meant a requirement for an increased output of military trainers, and Link Aviation was one of many firms that benefitted from the surge. Employment at the Link plant began to spiral upward, from 750 in 1950 to 2,200 by 1953. Production increased to such an extent that five additional manufacturing sites had to be leased.

The type of trainer Link and other manufacturers were turning out by the end of the Korean War bore little resemblance to the "blue boxes" (a common nickname for early Link simulators) of WW II. The day of the mass-produced, general-purpose flight trainer was fast passing.

Complex, electro-mechanical computers came into use; they insured that each flight simulator's instrumentation performed the same as that found in aircraft cockpits. The cockpits in trainers became replicas of specific aircraft types.

Control "feel" — again, by specific aircraft type — was duplicated with precision. Trainers came complete with the latest in simulated radio aids and navigation equipment. The instructor's station was equipped with automatic graphic flight recorders,

duplicate cockpit instruments, and the controls required to create the kind of emergency flight conditions and mechanical malfunctions a student pilot might actually encounter in the air.

As the concept of flight simulator construction and capability changed, so did the Link company. One of the individuals most affected by that change was Edwin Link.

It was in 1953 that Link — who had been his company's only president since its creation — turned over his position to his former vice-president and general manager, E. Allen Williford, and became chairman of the board for Link Aviation. At about the same time, he began a move to affiliate Link Aviation with the General Precision Equipment Corporation. The merger was completed in 1954, Edwin Link becoming a member of the board of directors for the new parent corporation.

A few years later, Link was elected president of General Precision. The man who had spent a good portion of his youth as a barnstorming stunt pilot, who built the pilot-maker out of scrap and some organ bellows and had seen his creation evolve from a coin-operated plaything to a vital aviation training aid, assumed direction of a corporation employing more than 15,000 persons and grossing more than \$185,000,000 annually.

Link stepped down as General Precision president in 1959, but he remained active on the corporation board. It didn't take him long, however, to decide he needed to try something new, so in 1964, when he was 60 years old, an abiding interest in oceanography took him to the Bahamas for a sustained diving test that was part of a "man in the sea" project he started with the National Geographic Society.

In 1965, with the Union Carbide Corporation and General Precision, Link organized a new corporation, Ocean Systems, Inc., to engage in the commercial development of a broad range of underwater services and supporting systems. More recently, he announced he had joined in a venture to design a new submarine.

Today, Edwin Link is a director of Ocean Systems, Inc. He is also a director of Mohawk Airlines and the First City National Bank of Binghamton, where he still lives.

He has been granted 25 different patents for inventions in the realms of flight simulation, navigation, and marine diving.

He established the Link Foundation in 1953 for the advancement of aerospace and oceanographic research, training, and education.

He is author or co-author of several papers and articles, with subjects ranging from "Simplified Celestial Navigation" to "A New Theory on Columbus' Voyage Through the Bahamas" and "Deep-Submergence and the Navy" (with retired Rear Admiral P. D. Gallery).

The list of honors and awards he has received covers the better part of a single-spaced, typewritten page. He has been appointed to advisory positions on no fewer than 20 committees, conferences, panels, foundations, and institutes, and is affiliated with more than 25 social, business, and historical groups, clubs, and associations.

That's what Edwin Link has accomplished since he built his first crude flight simulator in 1929. He remains a dynamic, active individual — and so, in a larger sense, does the company he started.

There have been more corporate adjustments and name changes in the years since Link Aviation, Inc., merged with General Precision. The company Edwin Link organized is known as the Link Group of General Precision Systems, Inc. Link is now building complex electronic flight simulators using a highly sophisticated digital computer (and has been credited with creating, for a major civilian airline, the world's first dual-cockpit trainer). Link employees are also very much a part of the space age: They are involved in the development of *Apollo* mission simulators and lunar module mission trainers for the National Aeronautics and Space Administration.

Link has also moved into such diverse activities as visual systems, data storage and retrieval systems (Link-developed equipment was used to convert spacecraft signals into photographs of the moon and Mars), vehicle detection and control devices, industrial controls, ordnance systems and components, and scientific programming devices.

But wide-ranging as its interests have become, Link is still very much a part of the Navy's aviation training device/flight simulation picture.



Learning at Naval Air Station, Whiting Field, Fla., is speeded by the use of a new four-cockpit instrument training system, built by the Link Group of General Precision Systems, Inc.

Part of that involvement stems from the fact that, in May 1965, the Link Group assimilated the electronic division of ACF Industries, which became the Link Group Operational Training Division. ACF's electronics division produced for the Navy major training devices for the S-2 *Tracker*, the P-2 *Neptune*, and the newer P-3 *Orion*.

Now, production of these simulators — all of them, incidentally, for Navy antisubmarine warfare aircraft — and several others (notably major trainers for the Air Force versions of the Navy's F-4 *Phantom II*) come under Link Group aegis.

One good way to acquire an understanding of the fantastic evolution of flight trainers, which has naturally followed the fantastic evolution of airplanes, is to study a typical Link-built simulator. Take the one for the "A" model of the *Orion*, Training Device 2F69B, for instance.

"The P-3A weapon system trainer exemplifies the state of the art attained in antisubmarine warfare simulation," says an official description of the 2F69B. "[The device] is housed in two expandable-side semi-trailers; one contains the operational flight trainer (OFT) portion [which is that part of the device built by Link] and the other the tactics portion. Each can be operated individually in the uncoupled mode or simultaneously as a weapon system trainer in the coupled mode.

"The OFT portion consists of the cockpit, OFT instructor station, and

the electronics necessary to provide simulation of the aircraft flight system's performance and flying qualities, navigation aids, environmental effects, and cockpit motion. The OFT is designed to provide individual or crew training for personnel in the following crew positions: pilot, copilot, and plane captain (flight engineer).

"The cockpit training area is located at the rear of the OFT trailer. Also housed in this area is the instructor's trouble console at which the OFT instructor can insert abrupt malfunctions, normal operation procedures, and in-flight emergency procedures."

In short, there's a whopping big difference between Edwin Link's original pilot-maker and the type of flight simulator being produced today. Adequately describing a modern Navy flight simulator takes a story by itself, and there will be one in this series.

But if you really want the differences between flight trainers of today and Link's early versions of 40 years ago to hit you right between the eyes, you need go no further than the price tag for them.

Link historian Parker reports that the first Link-built flight simulator sold to the Navy, the Aviation Trainer, cost \$1,500. The cost of a 2F69B for the P-3A *Orion* runs to \$2.8 million. Each.

It's a good thing there was no one around who could tell Edwin Link that in 1929. The man who is credited with starting the whole business would never have believed it.

Apollo 7 Splash-down

Veteran astronaut, Navy Captain Walter Schirra, Jr., coolly commanded the *Apollo 7* mission, from launch to splash-down. On blast-off his pulse was 87, lowest anyone could remember for a flight. It was his third mission.

One of the original astronauts, selected in 1959, Captain Schirra has flown each generation of spacecraft (*Mercury*, *Gemini*, *Apollo*). He made the first space rendezvous in 1965.

The *Apollo 7* astronauts, mission commander Schirra, Donn Eisele and Walter Cunningham, were plagued by head colds during most of their mission in mid-October, yet they accomplished more during the flight than NASA had hoped for.

The Atlantic waters 284 miles south of Bermuda, where the recovery was made, were rough when the capsule splashed down. Once they were aboard *Essex*, the astronauts were examined by NASA doctors who found them in excellent condition.

Apollo 7's performance and the smoothness of the entire operation, confirmed that the program might be ready for a trip around the moon (perhaps this month), a moon vehicle docking and, within a year, a mission to the surface of the moon.



After having to inflate air bags to right the spacecraft in heavy seas (left), the astronauts were picked up by helicopter and flown to the ASW carrier, *USS Essex*, where they cut the traditional cake (top) with Capt. Schirra officiating and Cunningham (center) and Eisele assisting. Later, Capt. Schirra administered the oath of re-enlistment to AX2 Barney J. Ackerman, AZC Alfred O. Kirst, and AWC Martin W. Culbreth, all of VS-22. At right, *Essex's* commanding officer, Captain John A. Harkins, observes the ceremony.





In Essex sickbay and still unshaven after an 11-day mission, Astronauts Eisele, Schirra and Cunningham (left to right) are congratulated by President Johnson via ship-to-shore telephone. Below right, Naval Aviator Captain Schirra in the cockpit of the S-2 with Lt. Jeff Walker, the pilot who flew him to Cape Kennedy. The Apollo 7 commander, Schirra, checks the landing gear after the aircraft was forced to return to the ship because of a faulty hydraulic system.



NAVAL AVIONICS FACILITY INDIANAPOLIS

Ronald F. Jackson



A tape-controlled high-speed drill press runs under watchful eye of a NAFI operator.

There's one big naval facility even some Navy men have not heard of: Naval Avionics Facility at Indianapolis.

Naval Avion — what?

Just what I said, Naval Avionics Facility.

Indian-what place?

Indianapolis, and it's called NAFI.

It sounds like a new sandwich or a disease. There ain't no such animal. But there is.

You're really putting me on.

Such are the reactions when mention is made of the U.S. Naval Avionics Facility, Indianapolis, or, as it is called in inner circles, NAFI. Many have never heard of it. Few recall when, under the administration of the Bureau of Ordnance, it was known as NOPI, the

By JOCs Lee Blair

Naval Air Systems Command

Naval Ordnance Plant, Indianapolis. That dates back to 1941.

But what NAFI may lack in renown, it more than compensates for in applied research and productivity, measurable at all levels in the operational worldwide Fleets of the United States Navy. There are few, if any, fixed and rotary wing Naval aircraft flying today that do not have some component engineered or produced by NAFI somewhere in their inner workings.

What does NAFI do? A poor question. It would be much simpler and take far less time to answer if the question were: What doesn't NAFI do? A

succinct but accurate reply would be: Not much.

Magnificently displayed on a beautifully manicured 163-acre plot at 21st Street and Arlington Avenue on the east side of Indianapolis, NAFI might well be called the Navy's technical pace-setter. From within the walls of this sprawling complex come many technological "firsts" for the Navy. Research, engineering, development, test and evaluation, and a limited manufacturing capability — all fall within NAFI's sphere of operation. The word *avionics* (coined from the dismemberment and mating of the words *aviation* and *electronics*) provides a small clue to the over-all capability and achievements of the facility. Avionics is therefore actually

a misnomer and portrays only a portion of the sum total of the end product.

"We do a little bit of everything out here," said Captain William O. Powell, Jr., a former commanding officer. "Our ability to react quickly and effectively in response to Fleet requirements is our forte." NAFI does work that industry cannot or will not do and, not infrequently, acts as a bridge to insure the continuous flow of developmental work on a project until industry is ready to take it over. In no way do we attempt to compete with private industry. We act only for purposes of expediency or in cases where industry has neither the interest nor the capability to do the required job."

This is why, with the exception of a few standing projects, NAFI's work load is seldom programmed more than six months in advance.

Executive Director Robert L. Van Camp says: "Experience tells us that this is the best way to work it. We don't have to chase around beating the bushes trying to drum up trade for NAFI. If you examine the work-load charts over the past 20 years, you'll find they all read about the same: a constant input of new projects and a constant completion of old ones balance out the schedule fairly evenly."

Under the management control of the Naval Air Systems Command, NAFI today is engaged primarily in the development of electronic equipments associated with naval weaponry — airborne, surface, and subsurface — but it is by no means NAFI's only function. At any given time, there are more than 1,400 individual projects underway, and that figure does not include separate work steps within projects. During one period in mid-July, more than 1,600 separate actions were in progress.

Of the total number of personnel at NAFI, some 500 are professional, scientific, and engineering employees performing research, design, development, test and evaluation functions. About 1,800 others are engaged in the fabrication of equipment for engineering studies, flight tests, and limited manufacturing. The remainder of NAFI's staff supports these functions

in supply, public works, industrial relations, and a host of other administrative capacities.

A quick tour of NAFI is an education in itself, and certainly an exhausting experience from a physical standpoint. The main building has 11½ acres of floor space on one level and houses everything from analog computers to drafting tables, from upper atmosphere environmental testing chambers to high-speed drill presses.

The first-time visitor is immediately impressed with the cleanliness of the facility and the quiet orderliness with which it is run. The highly polished tongue-in-groove hardwood flooring, indirect lighting, and attractively decorated walls and furnishings all help to make NAFI a pleasant as well as efficient place in which to work. Hoosier hospitality, one of the finest varieties in the world, is found in abundance. With typical Hoosier reticence, the employees are tight-lipped about their personal accomplishments yet there is a readily discernible glow of justifiable pride in the work that takes place.

Engineering department head John D. Hague says: "NAFI is really exciting. I have yet to experience my first day of boredom. When I left Purdue with my engineering degree in hand, I decided to work at NAFI for two years to get some practical experience under my belt before looking to indus-



Metal plating — gold, silver, bronze, copper, chrome, anything — is a NAFI specialty.

try. That was in 1954 and I'm still here. I find myself hurrying through breakfast in the morning just to get to work and find out what new challenge the day will bring. Be he double 'E' [electrical engineer] or mechanical, NAFI is an engineer's paradise."

There are girl-watchers, train-watchers, and bird-watchers, and if there were such things as black-box watchers, NAFI would be their nirvana. The complex array of electronic devices in every conceivable size, shape, and form, designed for an equally wide range of purposes, are in evidence everywhere. A small desk-top machine flashes a row of numbers with dizzying speed. It looks like the totalizer board at Santa Anita, and the visitor is astounded to discover that it is, in fact, an electronic calculator — a space-age version of the old-fashioned, electro-mechanical adding machine, but faster, quieter, and considerably more sophisticated.

Within a few yards of one another, a battery of women are tinning the leads of a wiring harness, a man is aligning the vidicon tube in the nose assembly of a *Walleye* glide bomb, a team of men is putting the finishing touches on an overhauled *Polaris* inertial guidance system, and a young trainee is learning to solder electronic components onto a printed circuit board.

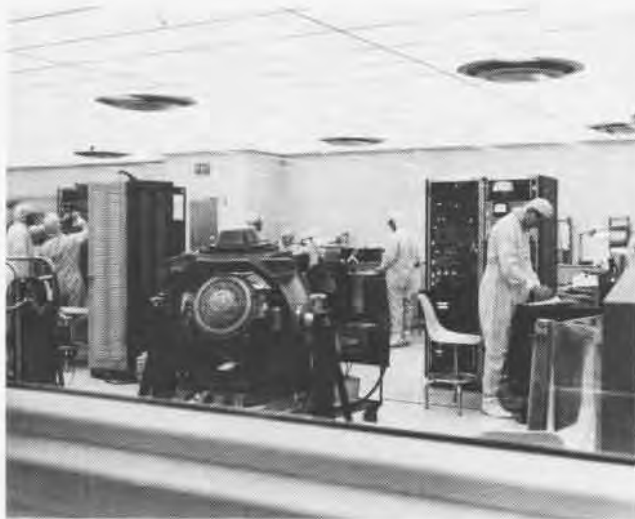
A short distance away, scores of draftsmen pore over their drawings, an engineering team scans reams of technical information projected from microfilm in the facility's Technical Library, and a highly skilled machinist is turning out close-tolerance radar assembly components from bar stock on a computer controlled lathe.

But how do all these diverse projects come under the cognizance of NAFI?

Actually, they are from almost as many different sources as there are activities in the Navy. In short, everybody has a problem, and everybody needs it solved by yesterday. And while the machinery at NAFI is geared to act quickly and accurately, it is not set into motion to solve a particular exigency without a careful and deliberate screening.



Ronald F. Jackson



The Naval Avionics Facility at Indianapolis, a section of which is shown at top of page, is engaged in more than 1,400 projects at any one time. The final assembly of delicate parts of electronics systems is done in clean room (above). One of the skilled workers (right) puts the finishing touches on a "black box" assembly.



A battery of questions must be satisfactorily answered before the wheels begin to turn: How necessary is the work? Can industry perform it? Who will pay for it? How soon must it be done? And so on.

One of the truly remarkable things about NAFI is that the facility is geared to accept a project at any point in that project's development be it theoretical research or out-and-out completed manufacture. A smattering of projects in which NAFI has become involved at varying stages in recent years includes: advanced electronics, radar, bomb racks, rocket launchers, telemetry (missile-borne and ship-board), fire-control computers, earth orbiting satellites, guided weapons, deep submergence studies, field test equipment and micro-electronics. Equipments used in support of these assignments include analog and digital computers, outer-space simulation chambers, super-clean rooms where even the use of carbon pencils is prohibited, anechoic chambers, tape-controlled electronic machine tools, and an infinite amount of test and calibration devices.

NAFI is well equipped to meet present day requirements. During the war years, the facility turned out more than 60,000 fire-control instruments, including the famous Norden bomb-sight. For this and other related accomplishments, the facility thrice won the coveted Army-Navy E for December 1943 through March 1945.

From a wartime peak of 6,900 employees, NOPI dropped to a post-war low of 1,100 men and women, most of whom were white collar workers. In 1956, the Bureau of Aeronautics assumed responsibility for aviation fire control, and NOPI became NAFI. When BuAer became BuWeps in December 1959 after the merger of the Bureau of Ordnance and BuAer, control of NAFI went to BuWeps. After the major Navy Department reorganization of May 1966, NAFI was placed under the control of the newly formed Naval Air Systems Command.

NAFI's participation in aircraft and missile programs, such as the A-7 series, A-6A, *Raven*, *Corvus B*, *Terrier*,



NAFI's well equipped technical library keeps pace with the accumulation of data. Reams of detailed information can be scanned quickly and easily.

Talos, and *Polaris* in the past, and its present involvement in A-4 sight modifications, plus the newly developed meteorological data receiver/recorder sets, have provided experience through which the facility is well qualified to help produce the Navy's increasingly complex and effective weapon systems, missile systems, satellites, and supporting equipments.

Captain Justin A. O'Neil, NAFI's present commanding officer, is enthusiastic about his facility's present and future role: "We are prepared to undertake a project at any stage of development and see it through 'from cradle to grave' if necessary. We envision that the Navy will always have a requirement for an installation such as NAFI and that the facility will always justify its worth. We are interested in providing industry with data packages, on which they can intelligently bid, to meet present and future Fleet requirements. In any case, NAFI is ready with the tools and experience to fill any gap which may develop, and we welcome the opportunity to provide service to the Fleet."

That NAFI is unique as well as versatile would be an understatement. As this writer prepared to leave the facility after a most enlightening visit, his attention was drawn to a man with a screwdriver busily prodding a small mechanical device on the corner of a work bench. The device was a vast array of metal stampings, levers, and springs and, thinking it some intricate part of a sophisticated weapon system, the writer asked what it was.

"Oh, I'm on my lunch hour," the fellow told us, "and I'm just giving a guy a hand with a small problem. It seems the coin slot on the Coke machine got jammed up."

Like we say, there isn't really much that NAFI can't do.

SOME OF NAFI'S SPECIAL FACILITIES

- The clean room, 12,000 square feet of space within the windowless, main building is used for the repair and recalibration of such delicate instruments as the *Polaris* missile inertial guidance system, the overhaul of which is one of NAFI's continuing projects. Temperature, humidity, air pressure, and filtration are rigorously controlled.

- Two 900-cubic-foot outer space simulators provide temperatures ranging from -320° to $+200^{\circ}$ F. at simulated altitudes to 300 miles.

- A large electro-dynamic vibration machine, which can supply random or sinusoidal vibrations exerting forces to 28,000 pounds, is used to analyze structural or component fatigue.

- A standards and calibration laboratory calibrates instruments on a regular basis under conditions and tolerances not otherwise available except at the National Bureau of Standards.

- A metrology laboratory provides capabilities for the electrical measurements of voltage, resistance, capacitance, inductance, power, and frequencies ranging through the microwave regions. Measurements of linear dimension, mass, force, pressure, temperature, acceleration, and time also can be made.

- Thin film circuitry of micro-miniaturized electronic devices has been pioneered at NAFI.

Because of helicopter medical evacuations, more combat casualties have survived in Vietnam than in any other war the United States has fought.

Operating from shore bases and ships off the coast, helicopters can have a wounded man aboard a hospital ship in a matter of minutes.

But, without the man on the ground — the corpsman with every Marine patrol — the helicopters could be rendered practically useless in medical evacuation.

When there are several casualties, who should be evacuated first? More than 3,200 Navy corpsmen in Vietnam make that decision almost daily. A large number of them are young men.

Under enemy fire, there is not time to think about the situation. The corpsman must know what to do and do it.

In six weeks of school, corpsmen get backgrounds in anatomy, first aid, minor surgery, patient care, and nuclear, biological, and chemical warfare defense.

Those assigned to Fleet Marine Force go through four weeks of advanced training in casualty evacuation, special warfare medical requirements, and more first aid.

Marines frequently call upon "doc" to provide friendship. They want him to be a chaplain, and sometimes a letter writer.

When they get hit, the young man comforts them — binding their wounds with all the skill and speed he has — or closes their eyes in death, with a compassion far beyond his years.

Tomorrow, next week, and the rest of his tour in Vietnam, the Navy corpsman will be called upon to react under fire — to crawl on his stomach without regard for his safety — to answer that call for help.



Last man, until the action starts.

CORPSMAN



Hospitalman Leslie G. Osterman, sips water from his canteen during a rare break. He is sometimes asked to share his water, gives it cheerfully.



A heat exhaustion victim gets some of "doc's" water and care.

A medical evacuation, the corpsman says who goes first.



The corpsman's swift, sure hands bandage a Marine injured by an exploding booby trap.



The Norfolk-based attack aircraft carrier USS *America* is on the line in the Tonkin Gulf for the first time. Her untried crew had not previously operated at the tempo characteristic of a striking force in the 7th Fleet.

In these pictures, *America* photographers tell the story of a bomb, from the time it comes aboard from an ammunition ship until it is dropped on a target in Vietnam.

JOC Dale L. Kite relates the feeling of the ship: "Bombs are all over the place. Their movement across the decks of the carrier seems as incessant as the waves lapping at the shoreline. For every man aboard this ship, bombs are a necessary fact of life. They are the reason we are here."



P. G. Broeker

LAST DAYS OF A BOMB

D. V. Orgill



In the final on-deck phase of arming, an ordnanceman places a fuse in a bomb already hung on an aircraft (above). Teamwork is required to hoist the big bombs to racks under the wings. Ordnancemen carry the tools they need in a pouch attached to their belts. In the unusual picture (far right), a wing-attached camera on an A-7 Corsair records the explosions caused by another plane over North Vietnam.





An ammunition working party brings the last load of bombs aboard during an underway replenishment (left). The bombs are struck below where Marines assemble them. Above, seagoing Leathernecks put together a 750-pound bomb. Poised on a catapult, an A-7 Corsair prepares to launch against the enemy.



P. G. Broeker

D. V. Orgill





THE FIRST of the new naval flight officer wings was presented to *Cdr. Sidney M. Banks, NFO training officer and senior NFO of the staff of CNATra by Captain Frederick T. Moore, Jr., chief of staff. The change-over to the new NFO wings is to be completed this month by all active duty NFO's.*

Marines Get Navigator's Wings Enlisted are Trained at Cherry Point

In recent ceremonies at MCAS Cherry Point, N.C., three enlisted Marines were awarded navigator's wings and promoted after completing a 19-week course in aerial navigation.

Cpl. Christopher W. Tomkins, LCpl. Richard G. Grebner and LCpl. Kenneth R. Kolek received their wings and school diplomas from Capt. W. J. Gwaltney, school director.

Training includes navigation procedures through pressure patterns and other weather conditions, sun shots, dead reckoning and radar navigation, and celestial navigation.

Cherry Point is believed to have the only enlisted aerial navigation school in the armed forces.

Ingenuity of Chief is Rewarded Given \$1,275 for Beneficial Suggestion

Some 30 hours of work paid off to the tune of \$1,275 for Master Airframes Chief Zane W. Turgeon of VA-125, Naval Air Station, Alameda, Calif., for an idea he submitted under the Navy-wide Beneficial Suggestions Program. His idea, a centerline motion picture pod for the A-4 *Skyhawk*, has saved the Navy an estimated \$225,000 during its first year in use.

Unlike the two older methods, the centerline pod causes no interference or

reduction in weapons-carrying capability. Reducing aerodynamic drag, it also eliminates unbalanced wing loading.

Parachutists Establish Records

30,000th Jump Recorded at PR School

PRC James R. Greene parachuted into Manasquan Inlet, near Point Pleasant, N.J., to record the 30,000th jump in Air Crew Survival Equipmentman School history.

PRC Chuck Seymour and PR1 "Mac" McCraw later free-fell together for their 1,000th time, thereby becoming two of five Navy men to reach that mark.

Seven other jumpers accompanied Greene on his record-setting jump to bring the total up to 29,999. Greene was selected to make the 30,000th jump because he is senior jumpmaster at the Lakehurst school.

Civilian Doctor Aids VT Pilots Named Honorary Flight Surgeon

A Texas doctor, who assisted two VT-24 pilots after they ejected from their F-9 *Cougar*, has been named an honorary flight surgeon by Commander N. V. Campbell, VT-24's C.O., NAS Chase Field.

Dr. Clarence D. Snyder was driving near Refugio, Texas, when he saw LCdr. Dick Lester and Ens. Thurwald Gommer, Jr., eject from their disabled jet. He arrived shortly after the pilots hit the ground, replaced LCdr. Lester's dislocated shoulder and applied first aid measures to both pilots.

He remained on the scene until Navy doctors arrived. His prompt action contributed significantly to the well-being of both pilots.

Air Rework Facility Honored President Presents Award to C.O.

President Lyndon B. Johnson presented the Navy Department 1968 Cost Reduction Program Outstanding Unit Award to the Naval Air Rework Facility, North Island, in a ceremony at the Pentagon.

Captain William H. Shockey, commanding officer, accepted the award which cited the facility for saving

\$36,576,000 during FY 1968.

The San Diego unit is the second largest aircraft depot rework activity in the Navy Department. Some 7,800 employees rework jet fighters, helicopters, and early warning aircraft; overhaul four models of jet engines; and process other aeronautical components.

Army and Air Force rework units earned similar awards.

Intruder Driver Receives Honor Cited as 'Replacement Pilot of the Year'

The West Coast A-6A Replacement Pilot of the Year Award was recently presented to Lt. John M. (Mike) Luecke. This award is given annually by VA-128, the West Coast training squadron at Whidbey Island, Wash., for all pilots and bombardier/navigators transitioning to the Navy's A-6 *Intruder*.

Lt. Luecke received the highest academic and flight performance grade of all graduating pilot students taking A-6 transition training during FY 1968. He is now a member of VA-196.

Marine Claims a Combat Record Records 506th Mission in S.E. Asia

When he landed his *Skyhawk* at Chu Lai, Lieutenant Colonel Thomas R. Johnson had completed his 506th combat mission and a year in Vietnam.

Flying with VMA-121's *Green Knights*, LCol. Johnson was promoted to his present rank on the same mission by his wingman, Colonel R. A. Deasy, commanding officer of MAG-12.

Navy COD Squadron Wins Award Cited for Vietnam, Korea Missions

Fleet Tactical Support Squadron 50 is the winner of the National Defense Transportation Association's Navy Transportation Award for FY 1968. Commander Elton E. Guffey commands VRC-50.

Squadron pilots and crews were cited for flying logistical support missions for two carrier task forces in the Sea of Japan during the *Pueblo* incident and for missions in the Vietnam combat zone. The selection was made by the transportation board of the Joint Chiefs of Staff.

During the year, the squadron's C-1 and C-2 aircraft logged 1.9 million miles, accumulating 12,400 flight hours and 1,906 carrier landings. VRC-50 delivered 19,142 passengers, 2,077 tons of priority cargo, and 589 tons of mail to and from Seventh Fleet units and was instrumental in developing new concepts of carrier support in combat zones.

COD missions by VRC-50 have been accident-free since November 1960. During that period, the squadron has flown more than 76,000 hours and made 11,318 carrier landings.

The Marine Corps winner of the National Defense Transportation Association Award was Marine Heavy Helicopter Squadron 463, commanded by LCol. J. L. Sadowski.

The Marine squadron, which flies CH-53A transport helicopters, flew more than 37,000 sorties in Vietnam during the past year.

New Squadron is Commissioned Sangley Point Home Port for VAH-21

The Naval Air Test Center's Project TRIM detachment was commissioned as VAH-21 recently at ceremonies held at NAF Cam Ranh Bay. Home port for the new squadron is NS Sangley Point.

VAH-21 is the Navy's first multi-sensor night interdiction squadron whose mission is to interdict logistics moving over land or sea. Under the command of Commander A. E. Forsman are 29 officers, 129 enlisted men, and 12 NAESU contractor engineering technical services representatives. The squadron has four aircraft, modified SP-2H's redesignated AP-2H's.

Trophy Awarded VMA(AW)-533 Cited for its Professional Performance

General Leonard F. Chapman, Jr., Commandant of the Marine Corps, recently announced that VMA(AW)-533 is the winner of the Commandant's Aviation Efficiency Trophy for FY 1968.

The award was based on the superior professional performance of the squadron under combat conditions in Southeast Asia.

Fifty Years Ago

From the weekly reports of the Director of Naval Aviation for November, 1918:

Pensacola, with 108 seaplanes, recorded 2,600 flights totalling 1,595 hours of flying time during the week preceding Armistice Day, November 11.

Decisions have been made to continue training of Student Flight Officers and Student Ground Officers. Students were placed in four classes, or categories, depending on individual desires and whether they were Regular or Reserve Force. Some will complete the entire course and others will complete portions of the courses prior to inactivation.

Tests were conducted at Hampton Roads to determine the proper methods for releasing carrier pigeons from seaplanes. "If launched from the front cockpit, it is proper to throw them up in the air and at the same time throttle down the motor. If the birds are launched from the pilot's seat, they must be thrown downward."

A two-kilowatt radio set is in operation at Chatham, Mass., but only half of the seaplanes assigned are equipped with radio. On each patrol, one of the equipped seaplanes is sent along and "the station is constantly informed of the position and operations of every machine in the air."

An HS-2L made tests at Miami in which altitude records may have been broken. The pilot, Ensign P. H. See, flew to a barograph-recorded altitude of 11,300 feet. He reported the aircraft made a steady climb to 9,000 feet "but after that most of the gain was accomplished by 'zooming.'"

The NC-1 flying boat arrived at Anacostia November 7 en route to Hampton Roads. Various "Bureau officials" went aboard for inspection of the "biplane tractor," the largest machine completed in the Navy to this date.

Students attached to the dirigible section at Pensacola conducted successful parachute jumps using the Spencer type parachute. "Two parachutes were dropped with sand as a load to make initial tests as to the packing of the chutes. . . Six jumps from 1,200 feet were made by students. . . No injuries were sustained and no one seemed affected by the shock of the jump," the director's report announced.

"A remarkable feat" was reported by Chatham's Navy communications unit: "This pigeon was confined to a carrier without room enough to turn around and remained in the same cramped position for approximately 92 hours with less feed than it ordinarily would receive. After its period of solitary confinement, it was liberated about 30 miles from the station and [returned in] 42 minutes."

Cape May reported the following suggestion for working out an oil pressure problem in Liberty motors: "It has been found that very often oil pressure drops while the machine is in the air due to an air lock in the oil lead. To relieve this air lock, it is necessary to take a screw driver and unscrew a small plug in the oil pump, which allows oil pressure to again rise. This station has substituted a small petcock to replace this plug, and when oil pressure drops it is only necessary to open the petcock to relieve the air lock and raise the pressure."



W. W. Massie



PRACTICE is the key to readiness as the crash crews at NAS Agana well know. Every procedure is carefully studied so that no time is wasted when an emergency occurs. Above and left, air station crewmen are practicing the rescue of a man from a burning plane. At left, a driver, reaching his truck on the double, is ready to jump in. Above, a tanker crew practices foaming down a runway for any emergency that may result in a crash landing.

By Ensign E. C. Selby

Crash

NAVAL AVIATION NEWS



NAS Crash Crew, ABH1 Gray speaking, sir."

"This is Agana tower with an emergency. We have a C-121 with its #2 engine on fire. There are 23 aboard; the plane is carrying 11,000 pounds of fuel. Pilot estimates the field in 15 minutes. Landing will be on runway six left—any questions?"

"No questions, loud and clear."

Members of the 37-man NAS Crash Crew scurry to their assigned positions and don protective clothing. The red trucks roll out to their places at the

2,000, 4,000, and 6,000-foot marks along the runway.

A speck in the sky becomes a wing and fuselage. The landing gear drops; the tires screech on the concrete as the C-121 begins to taxi down the runway. The crash trucks roll out, and their crews are glad to see that the fire is out.

This is fiction, but it could happen. Because there is no way of knowing in advance what crash crewmen will be called upon to do, the Agana crew on Guam, under the leadership of its two

watch captains, ABH1 Jan D. Jamison and ABH1 John L. Gray, is ready 24 hours a day.

Readiness is achieved by practice and alertness. There are 18 pieces of rolling stock that must be maintained. On-the-job training twice a week, in which aircraft mock-ups are used, teaches fire-fighting skills. Turret operators learn to lay down a protective screen of foam and water so that hand line rescue men can save air crewmen or passengers who may be trapped in an emergency.

Crew on the Alert



Portrait of a Phantom

The 3,000th F-4 Phantom, produced by McDonnell Douglas, is poised gracefully at the St. Louis plant just before delivery to Navy. It flew to VF-92 at NAS Miramar.

NATO Teamwork

USS Springfield crewmen pull the chocks from a British helicopter during a NATO exercise in the North Atlantic. The helo had delivered mail to the ship.





A Fond Farewell

Home port for USS Randolph for 24 years, Norfolk bids a final farewell as the ship leaves for the mothball fleet.



Russian Helicopter Carrier

The Moskva, seen recently in the Mediterranean, is a combination helicopter carrier/guided missile cruiser. A "Harp" ASW helicopter appears on the fantail.

WOW!

There was nothing frightening on radar. Perhaps RDSN David Richeson is awed by the company of actor and Mrs. David Niven and Independence's commanding officer, Captain H. S. Matthews, Jr.





SELECTED

Richard Holden



AD2 TONY REESE supervises work of Dexter Jones in the engine build-up shop at Alameda. The Oakland youth was a summer employee under the Youth Opportunity Program.

YOUTH OPPORTUNITY

NAVY Alameda received unexpected help this past summer when Dexter Jones came to work in the engine build-up shop as a summer employee in the Youth Opportunity Program. The junior high school student was designated an apprentice aircraft mechanic helper even though the closest he had ever come to airplanes was the local airport where he watched them take off and land.

The veteran mechanics in the shop recognized Dexter's eagerness to learn and struggled right along with him as he studied to become a good aircraft mechanic. He pored over volumes of technical materials, asked a million questions, and put forth that extra effort to learn everything he could.

In a couple of weeks, working alongside experienced personnel, he was tearing down C-118 engines, rebuilding or replacing worn-out parts, then meticulously putting them back together. The men were impressed as they watched the youth install engine starters, generators, and fuel pumps as though he had been doing this sort of thing all his life. Throughout the summer Dexter remained attentive, uncomplaining, and punctual.

With the end of summer, Dexter's job came to an end, but his co-workers determined to show him how much his performance had meant to them. They found a way. On his last day, they gave him a wristwatch, a fitting tribute to an ambitious 14-year-old.

'Flying Professor' Honored

Captain Richard A. (Dick) Schram, the "Flying Professor," was presented the Navy's Distinguished Public Service Award at the Tailhook Reunion held in Las Vegas early this fall.

"Without consideration for his personal expenses and time," the citation read, "Richard A. Schram has executed a number of performances at the National Air Races, Pacific Northwest Air Fair, Mid-South Cotton Carnival, USAF Thunderbirds Reunion Airshow, the World's Fair, Sky-O-Rama, frequently with the Navy's Blue Angels, and in many other military and civilian air events. He has given millions of spectators the 'thrill of a lifetime' by his maneuvers in his Piper Cub."

The citation also noted that the Naval Air Reserve captain has inspired many young men to enter Naval Aviation.

Captain Schram is one of the few Naval Aviators who did not take Naval Flight Training.

All in the Family

Two NAS New Orleans transport squadrons, VR's 64X1 and 24X2, really believe in keeping the Naval Air Reserve "in the family." When they deployed to NAS Alameda for their annual training exercises, they took along two father-son teams and a mother-son team.

The sextet consists of DKC Velda Lousteau and her son, AM3 Ronald J. Licciardi; PHC Robert Cassidy and his son, PR3 Michael; and SF1 Jacob Kennedy and his son, ADAN Louis.

Chief Lousteau joined the Waves in 1966. Her son served two years with the Hurricane Hunters at Jacksonville before joining the Reserves.

Chief Cassidy is a veteran of 30 years service in the Naval Air Reserve.

AIR RESERVE

A runner-up for that tally is Shipfitter Kennedy who joined the Naval Reserve in 1939. Ten years later he transferred to the transport squadron, to which they both belong, when it was formed in New Orleans.

Young Cassidy is a student at Southeastern Louisiana College; the younger Kennedy is in high school.

From Radiators?

An enterprising young administrative yeoman at NARTU Alameda, Albert Guibara, has a novel way of selling copper automobile radiators on the side — at prices ranging from \$75 to \$2,000. He molds fascinating city skylines out of radiators, mounts them on walnut boards with velvet backgrounds, and sells them as art forms. He markets a full line of art objects, all painstakingly handcrafted out of radiator shells. He has sold nearly 300 skylines and several by-products, such as miniature skyline bookends.

Business has been so good, the 23-year-old yeoman, who entered the TAR program last January, no longer canvasses junk yards for scrapped radiators; he has them made to order.

His work is marketed by Dunhill of London, through Los Angeles, Chicago, New York, and San Francisco.

Guibara got his idea while viewing San Francisco's skyline from a Nob Hill apartment. "Here," he thought, "is something that should be captured in permanent form for people to enjoy who may never see it as I see it." Making the skylines out of radiators suggested itself. The cross-ribbing design is a reasonable facsimile of a modern skyscraper.

The first skylines he made were not duplicates of any particular city, but products of his imagination. "I found that people would look at my skyline of no particular city and still be able



Perez-Castillo

YNSN ALBERT GUIBARA shows his skyline of San Francisco, complete with Treasure Island and Bay Bridge, to his father, Leon. Sculpture was presented to C.O. of NARTU Alameda.

to pick out at least one building which reminded them of a building in their home city."

His usual work habits — five days a week, 10 to 12 hours a day — were slightly altered when he came on active duty at Alameda, but he says he's happy to be a part of the Naval Air Reserve team.

On Top of Little Kennesaw

Personnel of HMM-765, MARTD Atlanta, Ga., recently aided the National Park Service with a helicopter airlift at the Kennesaw Mountain Battle National Park. Three Civil War cannon were broken down into four pieces and taken to their original location atop Little Kennesaw, adjacent to Kennesaw Mountain, a piece at a time.

The landing zone was a clearing on top of the mountain. Trees had to be

cut down to make room for the H-34, and the helo had to land in the midst of large chunks of exposed granite. There was not much room to maneuver.

The three cannon are the 12-pound Napoleon, smooth-bore type with a 1,220-pound bronze barrel. The original oak parts of the carriage have been restored with iron, which makes them considerably heavier than they were originally when the Confederate forces used them to bombard General William T. Sherman's supply lines and troops.

If you wonder how the cannon were originally moved to the top of Little Kennesaw, history informs us manpower moved them; the grade was much too steep for horses or mules. Over 100 men lifted those same cannon up a specially built trail which no longer exists. We are told it took all day to wrestle one to the top.

Now the cannon are back, exactly where they were 104 years ago.



ON PATROL

with the Fleet Air Wings

Guests at VP-30

Under a program which began last August and will continue through August 1969, VP-30, NAS Patuxent River, is training approximately 150 officers and enlisted men from the Royal Norwegian Air Force in the operation and maintenance of the P-3 Orion. The Norwegian Air Force is scheduled to transition to the P-3 in April.

The first week in October, the squadron participated in an annual liaison visit with personnel from the RAF Maritime Operational Training Unit and the Canadian Armed Forces 449 Squadron. Current and future ASW training methods were discussed as well as improvements in the training syllabus. The RAF arrived in a *Shackleton Mark 2* while the Canadians arrived in an *Argus*.

P-3 Trainer for Barber's Point

A \$3.5 million P-3A simulator being readied for use at NAS Barber's Point, Hawaii, is scheduled to "fly" in September 1969, according to Com-

mander J. R. "Ted" Crosby, OinC of the station's detachment of FAETUPac.

Previously in use at NAS Moffett Field by VP-31, the simulator is an old friend of many a Barber's Point pilot, copilot, and flight engineer who trained in it at Moffett.

A crew of ten will support the trainer which will be updated to the latest configuration by a team from Curtiss-Wright, East Paterson, N.J.

Outstanding Inspection for VP-19

After a squadron's homecoming from deployment, a post-deployment inspection is in order. In the past, time was allowed to prepare aircraft for the inspection, but under a new policy, four of VP-19's nine aircraft were inspected *immediately* upon return to NAS Moffett Field.

RAdm. Donald Gay, Jr., ComFAirWingsPac, said: "With the intent of providing a more representative view of the day-to-day condition of assigned aircraft, the inspection was conducted immediately following return to home port.

"It is particularly noteworthy that

although two of the aircraft inspected had returned directly from an exercise in New Zealand, the material condition of all aircraft was uniformly outstanding."

ComFAirWingsPac's inspector awarded an over-all grade of outstanding to the squadron.

Activities at NS Sangley Point

On VP-1's return to NS Sangley Point for its second deployment in the Southeast Asia area in two years, Commander Paul R. Hawkins, C.O. of the squadron, passed his 5,000th pilot hour a short while out of Whidbey. This milestone represented 17 years service as a Naval Aviator.

Also at Sangley, VP-49 was visited by Rear Admiral W. T. Rapp, Commander Task Force 72. Prior to coming to NS Sangley Point, the admiral visited the squadron's detachment at U-Tapao in Thailand where he was briefed by Commander R. E. Blandine, executive officer.

Using one of the squadron's planes ("Woodpecker Airlines") for the flight to Sangley Point, the admiral was greeted on arrival by VP-49's C.O., Commander R. S. Zeisel. Captain W. H. Patterson, ComFAirWing 10, accompanied the admiral on the trip.

Navy Pilot Leads Australians

A U.S. Navy pilot became the first American to take over the "controls" of a Royal Australian Air Force squadron during a ceremony at Garbutt Air Base in Townsville, North Queensland. LCdr. John A. Mueller, under the terms of a U.S.-Australian exchange



MEMBERS of the RAF visiting VP-30 arrived aboard this Shackleton Mark 2. Several of the visitors stand by their plane as AXC Robert J. O'Donnell, of VP-30's welcoming party, inspects it.



LT. BOONE (above) receives his Lockheed 2,500-hour pin from Cdr. J. C. Loberger, VP-6 C.O. Right, a VP-46 Moffett-based Orion, on a routine ice patrol, flies over a Russian ice station drifting in international waters above the Arctic Circle.



duty arrangement, relieved Wing Commander R. K. Rodd, RAAF, as commanding officer of Australia's No. 10 Maritime Reconnaissance Squadron.

In accepting command, LCdr. Mueller expressed his family's appreciation of the friendship shown them by the people of Townsville since his arrival in October 1966 from a tour of duty with VP-4 at Barber's Point. He was formerly No. 10 Squadron's deputy flight commander and operations officer.

LCdr. Mueller joined the Navy in June 1956. A year later he was designated a Naval Aviator and, on September 1, 1965, was promoted to his present rank. He wears the U.S. Air Medal "for outstanding achievement" in aerial flight during missions in support of combat operations in Vietnam.

10,000 P-3 Hours for 'Blue Sharks'

Four VP-6 *Blue Sharks* at Barber's Point received the Lockheed 2,500-hour pin for their flight time in the P-3 *Orion*. They were Lts. H. Kiviranna, G. E. Leonard, A. A. Connel, and J. M. Boone.

VP-2 Wins CNO Safety Award

VP-2, NAS Whidbey Island, won the CNO Aviation Safety Award for FY 1968. During the period, the squadron flew 11,706 accident-free hours operating from Sangley Point, R.P., South Vietnam, and its home

port. During the award period, VP-2 was led by Commanders R. B. Campbell and R. M. Dagg.

New Orion Prototype Ready

When the prototype model of the Navy's newest land-based ASW aircraft, the YP-3C, was rolled out at Lockheed-California recently, Rear Admiral T. J. Walker, Deputy Commander, Naval Air Systems Command, spoke of the aircraft's improved ASW sensor capabilities as well as the improved human performance made possible by systems integration and data processing engineering.

Outwardly, the YP-3C differs little from its predecessors, the P-3A and the P-3B. Its interior, however, bears little resemblance to the earlier models since it houses more than 200 additional pieces of avionics equipment. The design provides access to most of the equipment from three sides of the console mount.

VP-50 Helps in Earthquake

A very early and unpleasant reveille was held this fall at Sangley Point, R.P., when those living on the base awoke to find themselves virtually shaken out of their beds. The earth quaked and rolled for about four minutes, driving people from their homes and rattling buildings.

Centered at a point about 200 miles northeast of Manila, the quake reached

an intensity of six on the Rossi-Forel scale of nine. Medium intensity aftershocks were felt for 20 minutes after the main shock and weak aftershocks were expected to continue for months.

Many large buildings were damaged and several large apartment houses in Manila collapsed. When a request for help at one of the apartment buildings was received at Sangley, a call went out for volunteers. Over 90 percent of VP-50 personnel volunteered but, owing to operational commitments, only a number of men could be spared.

Those who aided in the rescue work were awarded letters of commendation from Rear Admiral D. L. Kaufman, Commander U.S. Naval Forces, Philippines. Commander Carl O. Hausler, VP-50 C.O., added his appreciation of the action that helped save many lives at no small danger to the rescuers.

Monthly Luncheon at VP-5

Once a month, VP-5, NAS Jacksonville, holds a luncheon designed to familiarize squadron officers with community problems and various naval activities. Guest speakers include prominent citizens from the community, local businessmen, and naval officers. The speakers have included the mayor of Jacksonville, Hans G. Tanzler, Jr.; Captain W. W. Honour, ComFAirWing 11; and Captain H. O. Cutler, C.O. of the station.

Commander John R. Farrell is the skipper of Patrol Squadron Five.



at Sea with the Carriers

PACIFIC FLEET

America (CVA-66)

In the first combat awards ceremony aboard *America*, 112 medals were presented to members of CVW-6, following the first period on the line in the Vietnam combat zone: two Silver Stars, a Bronze Star with Combat "V," three Navy Commendation Medals, five Purple Hearts and 101 Air Medals.

Lt. Roy Cash, Jr., the former RIO-turned-*Phantom*-pilot and Ltjg. J. E. Kain, Jr., received Silver Stars for downing a MiG-21 northwest of Vinh, North Vietnam. They were cited for

P. W. Chernouski



A SHIPFITTER aboard *USS America* uses an arc weld to repair a bracket on a bunk. The metalsmiths say they can fix anything.

"conspicuous gallantry and intrepidity in aerial flight."

Attack Squadron 82's Lt. Kenny W. Fields, an A-7 *Corsair II* pilot, was awarded a Bronze Star with Combat "V" and a Purple Heart for evading capture for 39 hours after his jet was downed by anti-aircraft fire.

VA-82 commanding officer, Commander John E. Jones, and Lt. John A. Van Eps received Navy Commendation Medals with Combat "V."

Captain Richard E. Rumble has relieved Captain F. C. Turner as commanding officer of *America*. Recently promoted, Rear Admiral Turner has assumed command of Naval Air Advanced Training, Corpus Christi, Texas. Capt. Rumble formerly commanded *USS Marias* (AO-57).

Bon Homme Richard (CVA-31)

Bon Homme Richard is home after her fourth, seven-month deployment with Seventh Fleet forces in the Tonkin Gulf.

During the latest cruise, CVW-5 pilots dropped more than 12,000 tons of bombs and rockets on enemy targets. Four of the pilots shot down three MiG's in aerial combat.

Near the end of her line period, *Bonnie Dick* officers and men received awards ranging from Silver Stars to letters of commendation.

Hancock (CVA-19)

In a double cake-cutting ceremony, two VA-55 pilots were honored aboard *Hancock* for their 500th carrier landings. Commander R. E. Kirksey, squadron C.O., and Commander J. F. Wellings, the executive officer, were the recipients.

Commanding Officer of VA-163,

Commander Elbert D. Lighter, made his 700th carrier landing aboard the ship after a mission over North Vietnam.

Intrepid (CVS-11)

LCdr. Stephen Picciuolo, maintenance officer for VA-66, made his 500th A-4 *Skyhawk* arrested landing after his 29th mission over North Vietnam.

Iwo Jima (LPH-2)

The presentation of the Admiral James H. Flatley Memorial Award to this amphibious assault carrier kicked off a ceremony on the flight deck only a few days after the ship had returned to San Diego from combat operations. Vice Admiral John V. Smith, ComPhibPac, was guest speaker. *Iwo Jima* is the only LPH to win the award twice.

Earlier, *Iwo Jima* crew members were presented medals and letters of commendation on the hangar deck. The Bronze Star was the highest award presented.

Coral Sea (CVA-43)

Coral Sea has been awarded the Battle E for Pacific Fleet attack carriers. The carrier currently is on her fourth deployment to the Tonkin Gulf with the Seventh Fleet.

Kearsarge (CVS-33)

Two *Kearsarge* first class petty officers have been selected for honors: MA1 Louis E. Blood was named White Hat of the Year; L11 Michael R. Vaillancourt, Bluejacket of the Quarter.

Blood received a letter of commen-



USS HANCOCK played host to high ranking officials who visited the attack carrier to observe operations. At left, Rear Admiral G. S. Morrison, ComCarDiv Nine, explains operations to Brigadier General Hwang Yong Si, Chief of Staff to the Field Commander of the Republic of Korea forces in Vietnam. Above are Admiral J. J. Hyland, CinCPac, Vice Admiral W. F. Bringle, Com7thFlt, and Captain H. E. Greer, Hancock skipper, as they view flight deck operations.

dation from Commander Seventh Fleet, and he and his wife received an all-expense-paid weekend in Las Vegas. Vaillancourt received a certificate of recognition and a \$50-savings bond.

Enterprise (CVAN-65)

For the second consecutive year, *Enterprise* has received the Navy Unit Commendation. The carrier, homeported in Alameda, Calif., is near the completion of repairs at Puget Sound Naval Shipyard.

Kitty Hawk (CVA-63)

It's a new Captain Davis for CVA-63. Captain John F. Davis relieved Captain Donald C. Davis as the *Kitty Hawk's* commanding officer. Capt. Donald Davis, commanding officer since 1967, has joined the staff of Commander in Chief, Pacific Fleet. Captain John Davis reported aboard from the office of the Chief of Naval Operations. He established the F-4 *Phantom* closed-course speed record of 1,390 mph in 1961. Vice Admiral Allen M. Shinn, ComNavAirPac, was guest of honor at the San Diego ceremony.

Plank-owner plaques have been presented to BMC Alvin Comfort and

BM1 James Kearney who have been aboard *Kitty Hawk* since before she was commissioned in 1961.

The 83,000th arrested landing was logged by Commander Gerald A. Hartman and LCdr. Joseph W. McBride in a C-1A *Trader*.

Ranger (CVA-61)

In less than ten days, 12 squadrons made some 2,000 launches and arrested landings aboard *Ranger* during carrier qualifications. During the same period, ten civic leaders were aboard for a five-day orientation cruise as guests of the Secretary of the Navy. One of those men, Marvin L. Porter,

an Oak Harbor, Washington, businessman, was particularly pleased with the qualifications of one aviator: His son, Ens. Gene L. Porter, VA-128, in his A-6 *Intruder*, was one of the qualifying pilots.

During the carquals, Ltjg. Channing W. Hayes, Jr., a VF-101 *Phantom* pilot, made the 108,000th arrested landing aboard *Ranger*. His RIO was Lt. Robert W. Cooper, Jr.

Immediately after the qualification cruise, *Ranger* returned to her home port in Alameda to prepare for her fourth deployment to the Tonkin Gulf.

Okinawa (LPH-3)

Okinawa, having completed her pre-deployment refresher training at the Fleet Training Center in San Diego, currently is operating with Seventh Fleet Amphibious Forces in WestPac.

Tripoli (LPH-10)

Aboard *Tripoli*, Captain Doniphan B. Shelton relieved Captain William L. Adams as commanding officer while the ship was supporting Marines engaged in operations in Vietnam.

Marine Lieutenants M. A. Flater and K. K. Shubin of MMH-265 made



SAN DIEGO Mayor Frank Curran chats with Capt. J. F. Davis (R) who relieved Capt. D. C. Davis (L) as C.O. of *Kitty Hawk*.



ANOTHER WORLD — Dressed in protective helmet and goggles, Airman Ralph Fix lends "another world" appearance to flight deck operations aboard the amphibious assault carrier, USS Tripoli (LPH-10), off the coast of Vietnam. This photograph was taken by Don Mazoch.

the carrier's 10,000th landing and LCdrs. V. E. Frank and J. F. Rowles, piloting the ship's helicopter, logged the 11,000th.

Tripoli has taken aboard just about every type of helicopter operating in the combat zone. When two semi-fixed-wing birds from the Republic of Vietnam landed to conduct carrier qualifications, *Tripoli's* repertoire of aircraft became complete.

Because of their ability to fold their wings and stow away in small places, the Vietnamese craft eluded most of the LPH's crew until launch time when an interested crowd gathered to watch.

They launched on schedule, after an active attempt to fly off without flight deck control approval, flew about 40 feet and crashed into the sea.

Later, *Tripoli* crewmen saw other units of the squadron conducting search and rescue operations in the area, but no report on the missing bats was readily available.

Ticonderoga (CVA-14)

Captain Richard E. Fowler, Jr., is relieving Captain Norman K. McInnis as *Ticonderoga* commanding officer.

Capt. McInnis was guest speaker at change-of-command ceremonies for CVW-19 at NAS Lemoore when Commander William A. Gureck relieved Captain Philip R. Craven. CVW-19 deploys aboard *Ticonderoga*.

Yorktown (CVS-10)

This Long Beach-based ASW carrier had just completed two weeks of refresher training off the California coast and returned to port when 5,000 little people stormed aboard for Kiwanis Kids' Day.

But the crew was prepared for them with displays set up in the hangar bays and on the flight deck. Captain John Fifield, C.O., presented lapel pins to the king and queen of Kids' Day.

ATLANTIC FLEET

Essex (CVS-9)

More than 2,300 dependents and guests of the ship and embarked CVSG-54 watched flight operations from *Essex* during the annual dependents cruise.

Other events of the day at sea were displays and a movie which explained antisubmarine warfare. Lunch included a choice of steak, ham, or roast turkey.

Forrestal (CVA-59)

MM2 Yuhl R. Dennison became the first *Forrestal* re-enlistee to receive more than \$10,000 under the variable bonus program when he re-enlisted for the first time.

Actor James Franciscus was among some 1,500 guests to visit *Forrestal* in

Malta. The TV star of "Mr. Novak" is on location there for the movie "Hell-boats" in which he stars.

Boxer (LPH-4)

Amphibious Squadron Eight Commodore, Captain R. W. Stecher, is directing *Carib 3-68* exercises from *Boxer*. The LPH is on a four-month deployment to the Caribbean.

F. D. Roosevelt (CVA-42)

The *FDR* has published a 20-page booklet entitled *A Navy Family Guide to Mediterranean Ports* to help families who wish to visit men deployed in the Mediterranean. Originated by the ship's past commanding officer, Captain Gordon S. Hodgson, the illustrated booklet gives pointers on how to travel to the Med, how to live comfortably while there, and approximately how much money one should expect to spend.

The booklet was compiled from information provided by several *Roosevelt* wives who followed the ship



TELEVISION'S "Mr. Novak," actor James Franciscus, tours *Forrestal* with a guide during a visit while the ship was at Malta.

during an extended deployment in the 6th Fleet.

A free copy of the booklet is available by writing the Public Affairs Office, USS *Franklin D. Roosevelt* (CVA-42), FPO New York, 09501.

Independence (CVA-62)

In a dual change of command aboard *Independence*, Rear Admiral William E. Lemos relieved Rear Admiral Lawrence R. Geis as Commander Carrier Division Four, and Captain Herbert S. Matthews, Jr., relieved Captain Clarence A. Hill, Jr., as commanding officer. Vice Admiral D. C. Richardson, Commander Sixth Fleet, was principal speaker.

The Honorable R. Sargent Shriver, U.S. Ambassador to France, actor David Niven and Mrs. Niven visited the carrier while it was anchored in the Riviera port of Golfe Juan, France. More than 3,800 visitors toured the ship during its ten-day stay.

John F. Kennedy (CVA-67)

In an A-4C *Skyhawk*, Commander Hal L. Marr, CVW-1, made the first arrested landing aboard CVA-67 while the new carrier was operating off the Virginia Capes October 22.

He was followed by two more *Skyhawks* and USS *Kennedy's* mail plane, a C-1A named *Caroline Two*. Captain Earl Yates, *Kennedy* C.O., welcomed the pilots with a traditional cake-cutting ceremony on the flight deck.

Lexington (CVS-16)

"Bomb Squadron - USN," a 28-minute television special, is being produced by Sun Dial Films, Inc., for the Chief of Information. The Navy plans to release the film to 600 TV stations across the nation and to ships and stations to tell the story of the Navy's explosive ordnance disposal teams in action.

Lexington was chosen for one of the locations for the color documentary. Other sections of the film were made at Indian Head, Md., and aboard a shrimp boat and a minesweeper out of Key West, Fla. Underwater sequences were filmed near Key West.

The film will be available for Navy-wide distribution in February from the Navy Film Exchange.



U.S. AMBASSADOR to France, the Honorable R. Sargent Shriver, chats with USS *Independence* C.O., Capt. H. S. Matthews, Jr.



CAMERAMEN get footage of an A-4 landing aboard *Lexington* while filming "Bomb Squadron - USN" on ordnance disposal.



A helicopter makes final approach to Tripoli.

FLOATING HELIPORT

Special Presentation by
JO3 Ralph Feliciello

Hitting the beach for Marines in Vietnam has most often meant running crouched down below slicing blades in a hot landing zone, rather than wading, weapon overhead, through the surf.

USS *Tripoli* delivers troops along the coast, uses her helos to take them deep inland, keeps them supplied, and acts as a floating field hospital.

The helicopter is troop carrier, supply truck, and ambulance.

Landings and takeoffs continue into the dark as helicopters chop inland — to take in fresh troops, to deliver long-awaited letters from home and C-ration spaghetti, or to evacuate a casualty.



Purple-shirted fuel crew moves in.



Crewmen rest on chocks, awaiting next helo.

Director helps pilot lift off.

PERSONAL GLIMPSES

Editor's Corner

THE MILD ONE. His build is short; you might even call him tiny. Although he talks easily, it's evident he's basically shy, with a politeness that almost makes you uncomfortable.

To Mom and Dad, he's the concert violinist. To motorcycle racing fans, he's the brash young man who almost took over the racing circuits, and to the U.S. Navy, he's Ltjg. Joel Nicholas, an E-1B pilot.

Currently on a Western Pacific deployment with VAW-111 out of North Island, Ltjg. Nicholas has had a varied background. As a nervous 16-year-old, he entered his first road race, not on the gravelly perimeter of some unused airfield, but at Daytona, the most revered circuit in America. After a string of successes, he was ready for big time racing at the age of 17. He acquired AMA amateur status and, within the next few years, became the boy wonder of the racing world. He then entered the Navy's flight program.

What's amazing about this young man is the fact that, while completing college, he became an accomplished violinist, still maintaining his position as a top motorcycle driver. At the University of the South, Sewanee, Tenn., he was concertmaster of the chamber orchestra. His major? German Literature!



VIOLINIST/AVIATOR TAKES A TURN

War Story. It seems that everybody has written a book about Vietnam. But JOCS Lee Blair, now assigned to the Naval Air Systems Command, has collaborated with Army MSgt. Donald Pratt on a book that is a bit different. Scheduled for publication soon, "Wish Me a Rainbow" is a compilation of vignettes and anecdotes about personnel in all the Armed Services in the war zone. What follows is one about a Naval Aviator:

Ltjg. Barry Wood was a Skyhawk attack bomber pilot aboard the Seventh Fleet carrier Oriskany operating in the Gulf of Tonkin during the summer of 1967. He flew many missions against the enemy and distinguished himself in the air war on more than one occasion.

He was assigned to our office for a month as a liaison officer, and we were

on hand to meet him when he arrived at Tan Son Nhut Airport. We noticed that he was uneasy in the new and unfamiliar surroundings, so we did what we could to allay his apprehensions.

"First trip into Vietnam on the ground?" we inquired lightly.

"No," said the lieutenant matter-of-factly. "I've been in-country twice before."

He still seemed nervous, and we wondered why. Several days later, his boss (a commander who was his squadron C.O.) told us that this was, in fact, Mr. Wood's first trip to South Vietnam. We were still trying to figure out why the Naval Aviator had told us it was his third trip when the commander added: "Lieutenant Wood was shot down, forced to eject and rescued twice—in North Vietnam."

POLAR BEAR WATCHING. Over the last year this column has mentioned enough different critters, from worms to crows, gorillas, etc., to make us think we ought to call it the "Animal Corner." Now we find the men on Project Birdseye are watching polar bears.

Flying over the Arctic in a Super Constellation, observers collect data. This knowledge of environmental factors is necessary for topographic charting and prediction.

Although bear watching is not a part of their regular duties, the observers began recording sightings in 1964 for interested biological institutions. Chief A. C. Boeger who is not a polar bear expert but who tops the list of sightings made, said the observations are made during the summer, spring, and fall. The ice observers do not record bears during the winter because bears cannot be seen in the dark, especially from the aircraft's altitude. Because the bears are the most ferocious creatures in the Arctic, Chief Boeger said he would not like to meet one on the ice and is content to watch them in comfort from 1,000 feet up.

While laymen may think a polar bear is white, Chief Boeger explodes the popular conception by stating that they usually appear light yellow, and sometimes even "dirtier," depending on the area in which they have been travelling. Furthermore, no more than two adult bears have ever been spotted at one time.

Reunion. During the air show at the 1968 Tailhook reunion at Las Vegas in September, Admiral Thomas H. Moorer, Chief of Naval Operations, spotted Frank Tallman's restored "F4B-1" on the tarmac. This "high performance aircraft" of the early Thirties is similar to the type the Admiral flew when he was a young Naval Aviator attached to VF-1B aboard the Navy's first aircraft carrier, USS Langley. "It was the hottest airplane in the U.S. inventory then," he said.

Looking back, comparing Naval Aviation of those days with the present, the CNO noted that the modern carrier fighter, the F-4B Phantom II, weighs more and has a greater cost than his entire squadron of 18 planes on the Langley. "Furthermore," he said, "it can fly faster straight up than my old F4B-4 could dive straight down."



BOEING F4B-4 FIGHTER

Admiral Moorer nostalgically recalled his early career. "My dad told me over and over that it didn't really matter what I did as long as I fulfilled a couple of requirements. One, was that I like my work and, two, was that I do it well. Interested in flying," said the CNO, "I thought I'd give it a try."

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Scientists Study Ocean Currents

Navy Super Connie is Research Plane

In an effort to analyze the velocity variations between currents and counter currents in the Gulf Stream, Navy scientists are dropping dye markers in the Atlantic from a converted *Super Constellation*. Oceanographers studying the dye tracks hope to measure the turbulence where the currents meet.

Bob Pickett, a planner for the ASW Environmental Prediction Service, explains the project: "We are trying to predict the currents within the Gulf Stream."

The oceanographers are interested in predicting the currents because layers of warm water found in the stream can confuse sonar equipment, making the Gulf Stream a good hiding place for submarines.

VX-8, based at Patuxent River, is providing flight support to the Oceanographic Office for the tests.

LETTERS

Kudos for October NANews

I was highly impressed and moved by the saga of the Naval Air Training Command and its operations. The articles were well done and the photos which make *NANews* one of my favorite magazines were excellent...

The magazine represents "something special" to me and the country. Keep up the great work.

James F. Kappus
Assistant to
Alvin E. O'Ronski,
Member of Congress

NANews with the color covers just arrived and it is a beauty inside and out. Pensacola ought to love that issue. It reminds me of the wartime *News* when it was a training magazine solely, but never did it look so fine as this one. My congratulations to the staff.

Arthur L. Schoeni
Former *NANews* Editor

After complete perusal of the issue, I feel as if I had qualified for my wings—Preflight, Basic, Graduation. I loved it and congratulations.

Joy Bright Hancock
Captain, USN, Retired
Early Editor of *NANews*

Congratulations on the October issue. I have felt for a long time that this fine publication needed only the finishing touches, such as a color cover and a more "open" layout, to achieve its full potential. The October issue on the Naval Air Training Command incorporates these items while maintaining the standards of good writing and good editing that we have come to expect.

I hope that this magazine is a prototype for issues to come. If so, it will quickly be recognized as one of your most valuable tools for promoting Naval Aviation.

Gene Mayhall
Managing Editor
DATA magazine

The October issue of the *News* is a most impressive and professional presentation of the Aviation Officer Programs. It will be invaluable in establishing rapport with potential candidates for the programs. We can use it most effectively on college campuses.

Our congratulations to the *News* staff for a job well done.

R. B. Bussell, LCdr.
Recruiting Officer
NAF Washington

I received the latest issue of *NANews* and was pleasantly surprised by the color covers. It certainly gives it a Cadillac look.

I picked up my first issue of *NANews* at NAS Norfolk in 1942 and I have been reading it ever since. I always get a couple of pleasant hours reading it.

Keep up the good work, and let's have more color in future issues.

Al Magliacane
175 Elmwood Drive
Clifton, N. J. 07013

I commend the staff of *NANews* on a job well done. It's the finest magazine I have read and keeps me up-to-date on Navy air.

Airman Fred F. Harl
Langley AFB, Va. 23365

Naval Aviation Films

The following motion picture films are among the latest released by the Film Distribution Division, U.S. Naval Photographic Center. They should be of particular interest to personnel in Naval Aviation.

KD-10559 (unclassified): *Armed Forces Vietnam Report*. Marines prepare for a full-scale assault by the Vietcong at Khe Sanh; USAF "College Eye" aircraft providing radar coverage for U.S. aerial combat missions; a damaged C-130 is saved by an Air Force crew during attack on Dak To; a new look at Army's *Huey-Cobra* on fire support missions in the republic. Rescue of an Air Force crew in North Vietnam; aviation ordnancemen on carriers of the Seventh Fleet; American aid to children's orphanages in South Vietnam and Thailand; reports on the F-111, the AH-56A *Cheyenne*, and the world's largest aircraft, the C-5A *Galaxy*; two missions flown by the HH-43 *Huskie*, using call sign "Pedro" (29 minutes).

MN-10118A (unclassified): *M-21 Aircraft Expeditionary System—Aircraft Catapult and Arresting Gear*. Installation and operation of the M-21 arresting gear, used by Marines in SATS site operations (20 minutes).

MN-10377A (unclassified): *Snakey—Handling and Fuzing*. Correct procedures for assembly and loading the Mk 81 and 82 bombs for various delivery modes (16 minutes).

Instructions for obtaining prints of newly released films are contained in OpNav Instruction 1151.1D.

PROBLEM

Getting to see each issue of *Naval Aviation News* on time? Have a subscription sent home. Response indicates it goes over big with the wife, kids, and even the neighbors.



The TOP FIVE

These are the most outstanding Naval Aviation insignia approved for official use during the past 18 months.

Selected for the success with which they carry out the objectives of the insignia program as well as for their artistic merit, these five stand out as the best of those adopted by 52 commands which have placed record copies on file. They have much in common. All have the quality of enduring significance. All are in keeping with the dignity of the service. And all have an impact achieved through strong color contrast and simplicity.

That others achieved these qualities in only slightly lesser degree goes without saying. Some of these will appear in later issues. For now, the Naval Aviation News staff takes pleasure in congratulating the designers and wearers of the Top Five.





NAVAL AVIATION

NEWS

As 1968 approaches its final sunset, Naval Aviation News looks forward to a new year of great challenge. Our goal is to present in words and pictures the action and events in which the officers and enlisted men of Naval Aviation participate. So be sure to 'keep those cards and letters coming in.'