NAVAL AVIATION NEWS

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WHERE WINTER IS MASTER

During the long winter night in Antarctica, snow buries VX-6 aircraft, and only hard work makes it possible to get them flying again. Above, Fred A. Long, Jr., AD1, cleans snow off R4D engine. Below is snow-covered R4D, 'Que Sera Sera,' which made first landing in history at South Pole.

NAVAL AIR STATION THAT FLOATS

USS ALAMEDA COUNTY, *converted from LST-32 to AVB-1, is Navy's first Advanced Base Ship. She can land men and equipment to place a NATO airstrip into full operational condition within hours. She carries fuel, spare parts, technicians and facilities to operate an airstrip.*

SIXTH FLEET ships are moving to the Eastern Mediterranean when a decision is made to activate a NATO airfield at Souda Bay, Crete.

At Naples, activity on board the Advanced Base Ship USS *Alameda County* increases. Requirements are determined from the OpOrder.

Support will be required for a squadron of 12 P2V *Neptunes*, two early warning *Super Constellations* and four Marine *Packets*. The squadrons will perform their own maintenance, using the equipment they bring, or that furnished by the *Alameda County*. Transports and Carrier Onboard Delivery aircraft will stage through Souda Bay to provide ships of the fleet with parts, supplies, mail and personnel. They will require support as will carrier planes diverted ashore.

Alameda County will provide communications, messing, berthing, fuel, ordnance, tower facilities, loading equipment, generators for power, field lighting, fresh water, work stands and the transportation required for aircraft crews.

The ship has an unusually versatile crew but still other men will be required to perform the many tasks that will arise at the airstrip.

Tower operators, additional cooks, drivers, stewards, radiomen, technicians, corpsmen, aerographers are ordered to the ship from other Mediterranean activities. Additional men gather at air terminals in Naples, Malta and Port Lyautey. They board aircraft already loaded with special equipment for the operation. Men who cannot be flown in will be picked up "on the fly" en route.

TRAFFIC IS *controlled from tower, using radio equipment installed in mobile communications van outside. Alameda County provided van.*

A PAIR OF aircraft jacks for the P2V's is loaded at Malta. Port Lyautey provides a tower operator, VR-24 a flight surgeon. A cook from FASRon-201 at Malta boards an RSD transport that has a sonobouy test bench on board. These figures are representative. Eighty men with talents required for the operation are ordered to the ship at Souda Bay. It is too late to board at Naples; she has sailed.

Alameda County's 43 vehicles, ranging from jeeps to 2000-gallon refuelers, have been loaded into the hold that once carried tanks in an amphibious assault. She is underway for Souda Bay at best speed.

Upon arrival she is beached. Bow doors swing open and the ramp clanks down. Off-loading commences. Out trundle refuelers, communications vans, generators, fork lifts, bomb truck, crash trucks and an ambulance. Galley and messing equipment are set up.

The aerologist sets up his equipment and prepares the first surface chart. An electronics technician readies a teletype to receive weather information from Port Lyautey.

A telephone line is unreeled on the ground from the ship to the field. Gas trucks begin their circuits from ship to field that will continue 24 hours a day until the fuel stocks at the field are built up. They haul 2000 gallons a trip. Narrow, rough roads that wind up the steep slope to the field wear down men and machines, tax maintenance men.

Within an hour, the field has come to life. The tower is in operation, a transmitter is beaming out its homing signal from the communications van. The first of the P2V's is overhead. Flight operations have commenced and the pace will not slacken throughout the operation.

When the limited fuel on the ship is depleted, a tanker appears in the harbor, discharges aviation gasoline to the gas trucks through a floating fuel line and departs.

Aircraft maintenance at the field is performed by the squadron personnel. A P2V-7 jet engine is replaced in a scant 40 minutes.

As quickly as it started, the operation is over. The Sixth Fleet returns to the western Mediterranean and the patrol aircraft return to their home bases. Transports fly out the special equipment and the men who were assembled to support the maneuver. But the roll-up continues.

Diesel-powered generators are shut down and the pumps and motors they powered whine to a stop. Truck loads of galley equipment, cots, tents and food wind down the hill to the ship. Fork lifts, jeeps, weapons carriers and fuel trucks are backed on board. Boats are hoisted, the last man from the now-deactivated air station is aboard. Bow doors creak shut and the ship is backed off the beach.

Goats return to their grazing on the idle NATO airfield.

The operation described here is not an isolated instance. It is a typical mission performed by USS *Alameda County*, the Navy's first Advanced Base Ship (AVB-1).

The ship was formerly LST-32, thus one of the first LST's built during World War II. It was converted first to an amphibious aircraft tender in 1953 when it became apparent to planners that until the NATO bases in the Mediterranean became fully operational, a need existed for some sort of emergency capability to set up air bases on an instant's notice around the perimeter of the Mediterranean.

The Navy decided to commission a ship on an experimental basis which could beach at any place in the Mediterranean and quickly offload equipment to set up an air base.

Alameda County proved so successful as an amphibious aircraft tender for placing austere airstrips in operation, and for tending seaplanes, that she was redesignated in September 1957 as the first in a new class of ships.

As a prototype AVB, *Alameda County* has many distinctions. She is the oldest amphibious ship of World War II still in full commission; the only ship of her class, though others are planned; her first voyage was down the Ohio and Mississippi Rivers but she has since sailed the Atlantic, the Pacific and Mediterranean; she is one of the few ships in recent times to render full honors in passing Mount Vernon; her captains are qualified aviators; and she has single-handedly exchanged honors with a British fleet.

When LST-32 was pulled out of mothballs at Green Cove Springs in 1953 to begin her new role, extensive alterations were required. Some were accomplished immediately while others were postponed until 1955.

Decks that accommodated tanks and troops in amphibious war were converted to provide berthing and messing for 325 men. The tank deck was rigged so it could be curtained off and it was fitted with triple-deck bunks. New heads were installed, as were steam tables and salad bars to accommodate long cafeteria-type messing lines.

Some of the ballast tanks were modified for ordnance storage and some for aviation gasoline storage. Extra evaporators were installed to make water for the expanded crews required for *Alameda County's* versatile new role.

MAINTENANCE CREW *is put up in temporary tent to service planes like this early warning WV-2 Super Connie during 24-hour-a-day operation.*

Booms were added to handle the two LCM (Mike boats), two LCVP (Peter boats), a rearming boat, a bowser boat and a personnel boat, all required to support seaplanes in the Mediterranean.

Alameda County carries a portable tank farm comprised of collapsible 3000-gallon storage tanks that can be set up ashore on short notice. She has a new conning tower, modernized radars, a well equipped dispensary, one of the best pilots' briefing rooms in the fleet, and the rolling stock required to transport men and materials from ship to shore in activating an unmanned NATO air field.

Alameda County was deployed to the Mediterranean in 1953. With the exception of one additional conversion period in 1955, she has been on station there with the Sixth Fleet ever since. She usually operates independently and is underway or engaged in operations almost constantly.

Some of her missions have been war games but others have been in actual support of Naval operations.

In an advanced base operation, this unique ship beaches near the assigned location, lowers her bow ramps and begins to disgorge airport equipment — all of which is wheeled and mobile. Items like gas trucks, ambulances, cranes, fire trucks, communications vans, homing and electronic vans emerge, ready for service.

Messing and berthing equipment for the base go ashore in six-by-six trucks. The first item out is always the bulldozer to clear the way and to level the airstrip as necessary. Personnel from an entire aircraft squadron can be taken aboard when necessary. A detailed loading order is followed to insure that the items needed earliest are loaded last so that they will be first off when she is beached.

Alameda County had just arrived in Augusta Bay, Sicily, and was about to proceed to Naples when the Suez crisis broke in 1956. She was ordered back to Souda Bay immediately. She arrived at night and could see searchlights trained on the ensigns of United States ships which had just finished evacuating American citizens from Suez.

Alameda County activated the Souda Bay airstrip immediately. Her crew handled an average of 51 landings and take-offs daily as United Nations Emergency Forces were staged via Souda Bay into the trouble zone. During the lift, *Alameda County's* crew accommodated troops from Norway, Denmark, Sweden, Canada, Columbia and India. Pilots were all Canadian or Italian. Anyone aboard any plane was entitled to coffee and most were fed by LST-32.

Any man from any NATO country who called the ship for service heard the ship's motto: "Thirty-two; Can Do!"

On one occasion, an *Alameda County* cook served breakfast of sausage and eggs to 800 persons from two field ranges that had been set up ashore, more than six miles from the ship. The cook proved his versatility one evening when a large movement of Indian troops arrived at dinnertime.

Pork was the bill of fare for the evening meal, but the cook had been forewarned the evening before by a movie which described the Indians' religious avoidance of pork in any form. The cook immediately broke out sardines and cheese for the Indians.

On another occasion, the ship's hospital corpsman was summoned to meet an arriving airplane. He found a Danish paratrooper surrounded by nearly a hundred Swedish medical personnel. The stricken Dane had a terrific nose bleed.

SECOND POST-WAR *skipper, Cdr. J. H. Gullett, at mike, turns command over to Cdr. Andrew M. Sinclair, center, at Souda Bay in 1956.*

PRESENT C.O., *Cdr. Sinclair leans on blade of bulldozer, first piece of equipment to leave ship when remote airstrip requires activation.*

The patient could not communicate with the Swedes because he could not speak Swedish and they could not understand Danish. *Alameda County's* corpsman learned, however, that both the Dane and the Swedes could understand English. The sick man was then treated promptly.

In all, *Alameda County's* crewmen issued nearly 100,000 gallons of avgas, 1000 gallons of avoil. They serviced 112 airplanes, accommodated 668 visitors and 70 planes in overnight stops, and fed 3822 meals to UN Emergency Forces staging for Suez during the period 22 November-4 December.

That crisis, plus simulated emergencies, plus *Alameda County's* ability to convert to seadrome operations, have decided Navy planners that *Alameda County* as a type has a definite and substantial role in future Mediterranean operations. At one time or another since 1953 she has provided support to every type of aircraft the Navy employs in the Mediterranean area.

She can convert to seadrome operations with the same speed as she can make an abandoned airstrip operational.

An American newspaper correspondent visiting the Middle East wrote: "All along, I have been writing about

VERSATILE SHIP *easily converts to seadrome operations when called upon to support a squadron of seaplanes like these P5M's of VP-56. Buoys, control tower landing aids, boat service, messing and sleeping facilities are among the services provided by Alameda County.*

planes that support ships. Today I visited LST Number 32, with a set of wings painted on her bows.

"This was the strangest yet. Here was a ship that supported airplanes and airfields!

"If war should start . . . the NATO attack would be carried on to the death from these half-hidden airstrips."

Alameda County's personality is as colorful as her role is significant to fleet operations. She was built near Pittsburgh in early 1942. She steamed down the Ohio and Mississippi Rivers under international tennis star Gardnar Mulloy, her first skipper, to join the Atlantic Fleet and make numerous landings under fire in the Mediterranean.

One tour later, the LST-32 operated in the Pacific, increasing the number of combat decorations she was eligible to display on her quarterdeck. She was still in the Pacific when World War II ended.

The ship lay mothballed until 1953 when the concept was developed to activate NATO airfields spread throughout the Mediterranean. Economy prohibited the complete activation of all these big fields but they had to be ready to support patrol squadrons, early warning planes, transports and other fleet planes in the event of hostilities.

Her post-war skippers have all been aviators. Cdr. E. L. Crance was first to command her in the Mediterranean after her mission was changed from that of an LST. Since she was the only ship of her class, and since her mission was so important, she carried frogmen to survey all harbors in which she was to be beached.

Cdr. J. H. Gullett took command in 1955, just in time to bring the *Alameda County* back home for conversion.

Back in the States, *Alameda County* became one of the few ships in the Navy ever to realize the distinction of rendering full honors in passing Mount Vernon and Washington's Tomb on the Potomac. Navy regulations call for tolling the ship's bell, parading the crew, half-masting the ensign and sounding taps when abreast of the Tomb.

Veteran crewmen still recall that bell-ringing ceremony. Sometime between her active role in wartime and the time she returned from her first Med cruise, the *Alameda County* had acquired a huge battleship's bell.

When *Alameda County* returned to the Mediterranean again in late 1955 she was ordered to Malta, arriving just after sunrise, February 22. Flags lay made up on her decks for hoisting at 0800 to commemorate the national holiday.

As it turned out, *Alameda County*—a mere LST—was the only American ship in port. But what looked like the entire British Fleet lay anchored. By international courtesy, all men-of-war present must respect the national holiday of any other ship present by repeating her honors.

All British ships were hastily dressed. *Alameda County's* commanding officer made all the required calls and his call on the senior British officer, a three-star admiral, was promptly returned.

Only a few months later, the amphibious tender was steaming into Cannes, France, for the Easter holiday. A boat came alongside unannounced and discharged two civilians aboard the *Alameda County*. The captain was about to order the strangers off the ship when one of them introduced himself as Gardnar Mulloy.

"I was here for the Monte Carlo Invitational," he explained. "I saw the number 32 on your bow from my hotel window and I couldn't resist the temptation to come out and visit my old ship."

Alameda County seemed to fit quickly into her role of American ambassador overseas. Her athletic teams have competed with teams from other fleet units and from cities around the Mediterranean in basketball and softball. Her crew has sponsored memorable days for underprivileged children in highest regard for international relations.

Alameda County's crew has been called "Blue Ribbon." Her complement includes Seabees, Aviation Ratings and general service petty officers. Because of her special mission, most of her crewmen are senior rated men. Naples is home port, so married men rate dependents' transportation.

The ship's standard crew ranges from 150 to 175 men. Under ordinary conditions this complement is sufficient to handle all assignments. Additional specialists are picked up as required to cope with special operations.

Whether activating an airstrip ashore, laying out a harbor as a seadrome for seaplane operations, or throwing a party for Naples orphans, *Alameda County's* crew works as a well-integrated, effective unit. One of the most typical instances behind her "happy-crew" reputation lies in an incident that occurred recently at Souda Bay.

The crew had thrown a beach party ashore one night and learned that their skipper, Cdr. A. M. Sinclair, could play the bagpipes. Next day, as the ship lay alongside the breakwater, it came time to transfer a boatswain's mate and a steward, both among the most senior enlisted men aboard. An LCM was alongside for the transfer.

Sixth Fleet Marines in the LCM were astonished to see the skipper piping the two enlisted men off his ship by bagpipes. He stopped the show completely by playing the Marine Hymn as the LCM pulled out into the channel.

★ PRELUDE TO DEPLOYMENT ★

A VA-156 *Tiger is launched from steam catapult on Hancock. Called the "Iron Tigers," VA-156 is among first fleet units to fly F11F.*

VA-156, SKIPPERED *by Cdr. Jack G. Frain, completed its squadron carquals in the F11F-1. The "Iron Tigers" also have fighter mission.*

INITIAL ACCELERATION *of the world's fastest carrier fighter blurs aircraft as catapult crew watches first West Coast carrier ops of F8U-1.*

MIGHTY CRUSADER *engages wire during highly successful carquals. VF-154's WestPac cruise will mark first west coast deployment of F8U.*

CATAPULT BRIDLE *falls free of VA-113 Skyhawk following steam cat shot on Hancock during carquals. Note assortment of 13's on A4D.*

FORMER BLUE *Angel Leader, Cdr. Zeke Cormier, VA-113 CO, reaches for wire. Already qualified, squadron engaged in regular shipboard ops.*

Scheduled for regular fleet service this year, the Navy's newest aircraft engaged in carquals aboard the USS Hancock off the West Coast. Pilots of VF-154, VA-156 and VA-113, flying F8U-1 Crusaders, F11F-1 Tigers and A4D-1 Skyhawks, demonstrated the 'new look' while marking the jet age conversion of Navy's striking power to 1000-mph-plus fighter aircraft.

GRAMPAW PETTIBONE

Stub Wings and a Prayer

The pilot of an AD-6 *Skyraider* received taxi clearance and proceeded 300 feet to the warmup area preparatory to takeoff from Tokyo International Airport for a night return flight to his home base. While completing his runup and takeoff check list, he was interrupted by the tower with his ATC clearance. Immediately thereafter he was cleared to the runway.

The takeoff roll seemed normal to the pilot; however, immediately upon becoming airborne the aircraft wanted to assume a nose-high attitude and turn to the left. The pilot attempted to set the aircraft back down on the runway but was unable to do so owing to lack of aileron control. The *Skyraider* settled, and the pilot retracted the landing gear.

The engine was torn completely out of the aircraft shortly after impact, rupturing the main fuel line. The 150-gallon external fuel tank also ruptured.

The burning *Skyraider* slid 47 feet before skidding to a stop 170 feet to the left of the runway and approximately 7200 feet from the takeoff end. The pilot, who had lost consciousness momentarily upon impact, regained his senses at the completion of the slide-out and was immediately aware of intense heat. Unbuckling his safety belt and shoulder harness, he dived out the right side of the aircraft. He was unable to shed his parachute because of burns on his ungloved hands.

Not until after the crash was he aware that his short flight had been made with folded wings.

Grampaw Pettibone Says:

Great balls of fire! That's what the tower operators saw about two-thirds of the way down the runway.

Because of their unfamiliarity with the type of aircraft, the problem of controlling many other aircraft at the same time, and the complication of night operations at a busy commercial airport, the control operators did not realize that the aircraft's wings were folded.

Less easily explained is the fact that in going through the takeoff check list *twice* prior to takeoff, the pilot failed to note that the wings were not spread. According to the accident report, the external lights were on steady, rather than flashing, thus the pilot was less likely to note that the wingtip lights were overhead. Also, the short distance he had to taxi reduced the time during which he might have noticed the folded wings. The very short period of time from taxi clearance to completion of engine runup and receipt of ATC clearance—only four minutes—indicated a rather hurried check of the attack aircraft.

According to the Flight Surgeon, this case illustrates the astounding extremes which can result when a daily routine habit pattern is interrupted. The pilot was departing an airport with facilities unlike those of his accustomed home base. As a creature of habit he would normally rely on his squadron lineman to remind him to drop his wings while taxiing out of his parking spot. Also, the usual outside locking-pin check was missing from his accustomed pattern as he began to taxi. The pilot forgot the entire procedure as his mind switched to the task of contacting the tower for takeoff clearance. Further, his presence at an international airport may have made him overanxious and hasty in his preparations for getting airborne.

Burns on the pilot's hands were caused by his grasping the hot canopy when evacuating the aircraft. He had lost one glove that morning, so had left both hands uncovered. Burns on the upper face would have been eliminated or minimized had he had his visor down. However, the dark visor he had used earlier that day had not been replaced by the clear visor designed for night use. The clear visor was back at home base.

Several other gents have tried this maneuver, and there's no telling how many have *almost* attempted a stub-wing takeoff but were saved in the nick of time by an alert tower operator or a last-instant realization. So this lad wasn't the first to try it, and his 50 to 75 feet doesn't even constitute an altitude record.

Probably the most notable case (*Naval Aviation News*, December 1949) was that of the AD-2 driver who took off at NAAS Charlestown in spite of the tower operator's repeated warnings as he continued down the runway on his takeoff run. As far as I know, his altitude of about 250 feet constitutes the record for *Skyraiders* in the wings-folded configuration. His machine burst into flames upon crashing, too, the pilot suffered only slight burns.

It sure beats me how these stub-wing-wonder boys came through in one piece. They must have been thinkin' mighty pure thoughts. But one thing's for sure—their minds weren't fixed on their check-off lists.

To Have and Have Not

Case One: With his *Cougar* which had been rolling in alternate directions out of control and now headed straight down at 400 knots, the young pilot ejected through the canopy. In the pilot's own words, "When the chute opened, my feet were above my head,

causing my body to be jerked downward with a force greater than that of ejection.

"During my descent I was drifting backwards and tried turning myself around so I could see the terrain I was going to hit, but I couldn't rotate myself. I prepared myself for ground contact by bending my knees. I didn't hit hard, although I did fall backwards. The chute didn't drag me, because it was tangled in cactus. After about three hours I heard a plane. *I used one flare to signal the plane* and another to build a fire.

Case Two: Following a "thunking" sound and progressive loss of power, the pilot of a TV-2 on a night cross-country flight shut down the engine. Here's his story: "I was descending through a cloud layer and decided it would be better to eject than attempt a night flame-out landing with the city and the mountains in close proximity. I informed my passenger that we were abandoning the aircraft. Then I blew the canopy, waited for the sound of the other seat going, and ejected myself.

"My landing was normal and I stayed near my chute and waited to be

picked up. Eventually I heard a jeep and they heard my calls and a little later found me. *I would have been picked up within an hour if the flares I had laying in my locker had been in my flight suit where they belonged.*"

Grampaw Pettibone Says:

The "haves" have it. Nuff sed. Period. Exclamation point.

That Good Right Hand

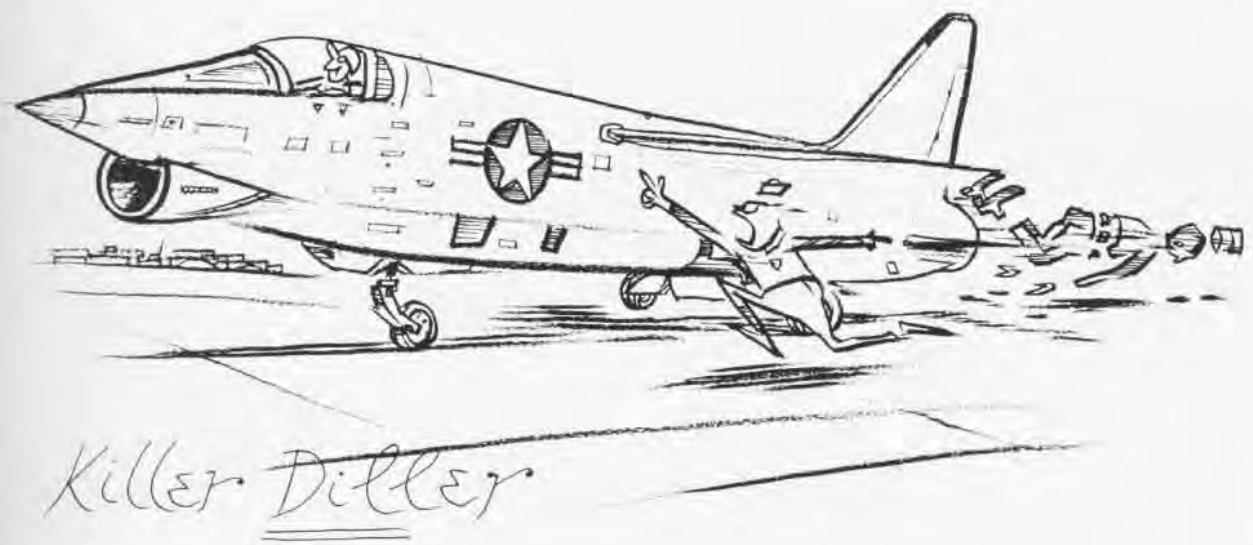
A local sheet issued by a unit out in the field included a blow-by-blow description of the following incident.

As the pilot was making his preflight inspection he noted some small dirt and debris in the intake of his jet aircraft and commented to the plane captain about it. After the inspection, the pilot crawled into the cockpit and prepared for the lite-off without waiting for the "all clear."

All of a sudden a man came running up wildly waving his arms. Just as he reached the aircraft, the plane captain crawled out of the intake. The plane captain would have been seriously injured if the pilot hadn't been interrupted in his attempt to crank up the engine.

Grampaw Pettibone Says:

The plane captain is the pilot's right hand man. In order to keep him around for awhile, it's a good idea for the left hand to know what the right hand's doing—and vice versa, if only to keep things safe.



TEMCO: HOME OF TEAL AND PINTO

THE TT-1 PINTO JET TRAINER HAS MANY OF THE FEATURES OF AN OPERATIONAL JET FIGHTER

THE TEMCO Aircraft Corporation of Dallas, Texas, is a relative newcomer to the field of aviation manufacturing. The story of its start and growth is a prime example of American enterprise and ingenuity.

The day after cessation of hostilities in 1945, North American Aviation deactivated its large Dallas plant. Mr. Robert McCulloch and Mr. H. L. Howard, veteran NAA executives, were concerned about the question of the use of this great manufacturing facility. They made a plan which brought Temco into being.

In the next two months, events coincided nicely with the optimistic schedule of the two men. They planned on a small-scale start. Leasing only a portion of the plant for diversified manufacturing would allow room for expansion. Accordingly, the Reconstruction Finance Corporation agreed to rent only about 550,000 square feet and $800,000 worth of equipment.

The lease enabled Mr. McCulloch to acquire a contract from Fairchild Aircraft for production of subassemblies for the C-82 *Packet* transport. Contract and lease were completed almost simultaneously, about November 15, 1945. A few weeks later there was activity once again in the big government plant. The new company of 300 hand-picked employees adopted a name that would encourage any business that came its way—Texas Engineering and Manufacturing Company, Ltd.

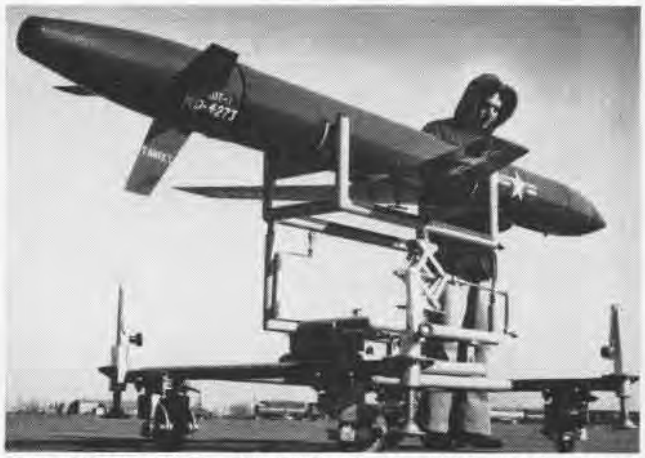
Business was good—and varied—from the start. The company soon organized a General Products Division for handling production of such items as mail boxes, venetian blind clips, metal window frames and vending machines. By 1947 they were also turning out popcorn machines, aluminum suitcases, minnow buckets, soft drink dispensers, truck bodies and a three-seat water bicycle.

But the backbone of the industry was always aircraft. For the first five years the bulk of the work was overhaul, conversion and assembly. Temco filled contracts for Boeing, Lockheed, Convair, Chance Vought, McDonnell, Martin; customers included Trans-World Airlines, Braniff, Norway, Saudi Arabia, Venezuela, Thailand. The Navy and Air Force awarded contracts with increasing frequency.

A hint of things to come was given as early as 1948, with the introduction of the TE-1A *Buckaroo* military primary trainer. It was produced in limited quantities, but it indicated the company's growing interest in the design of complete aircraft and its readiness to undertake military development work at its own expense. The next similar effort occurred in 1953. Temco designed and developed the Model 33 *Plebe*—from drawing board to first flight—in 75 days in order to meet a Navy evaluation competition deadline. The all-new primary trainer was not chosen because of its cost, but its performance was completely acceptable.

However, in 1956 the Navy awarded Temco a production contract for an evaluation quantity of the TT-1 *Pinto* jet trainer as a result of competitive tests at Patuxent River. The company was thus established as a prime

ARTIST SHOWS XKDT-1 BEFORE IT IS HIT BY AIR-TO-AIR MISSILE



TEAL LENGTH, 12 FT.; DIAMETER, 10 IN.; WING SPAN, 58.8 IN.

DALLAS PLANT WHERE THE PINTO TRAINER IS MANUFACTURED

THE POWER PLANT IS A CONTINENTAL J-69-T-9 TURBOJET ENGINE

aircraft contractor in its own right.

The TT-1 is an off-the-shelf, two-place plane, designed, built and tested by Temco. It has many features of operational jet fighters, including ejection seats, liquid oxygen equipment, speed brakes, and controls and instrument panels similar to those on the jets students will fly later. The *Pinto's* top speed is nearly 300 knots, it can land at only 62 knots. It is provided with a jet engine of 920 pounds thrust.

Facilities expanded through the years in proportion to increased business. The Navy, which had assumed control of the Dallas industrial facility from RFC, gave Temco a five-year lease on the entire "A" plant in 1947. Chance Vought moved from Connecticut to occupy the second main plant and assumed the prime lease on the entire facility in 1948. Temco expanded beyond Dallas for the first time three years later when it took over the Luscombe Airplane Company in Garland. The following year, 1951, a World War II air base some 50 miles from Dallas was leased from the city of Greenville. The overhaul and modification equipment was moved to this new locale. That same year the Navy awarded a $12,000,000 facilities contract which provided for purchase of modern manufacturing equipment and additional building area. In the future, Dallas will serve as the aircraft components fabrication facility, Greenville as the overhaul and modification facility, and Garland as the electronics missile facility. To this end, an engineering center was opened in Garland.

Other vital changes took place after

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The story of Temco Aircraft is the twelfth in the current series of feature articles on companies which have built and are building aircraft for the United States Navy.

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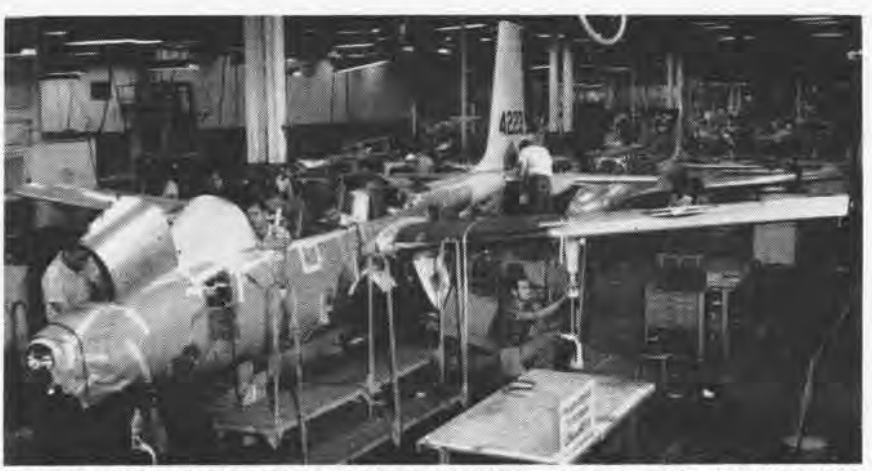
the first five years of expansion and stabilization. By 1952 production was devoted almost 100 percent to aviation products. President McCulloch and Executive Vice President and Treasurer Howard felt it was unnecessary to attract general business with a general purpose title. It was redesignated the Temco Aircraft Corporation.

In 1954, the engineering department was reorganized to advance the study and solution of military weapons problems. Thereafter the Navy ordered a $16 million development contract for a guided missile weapons system.

The XKDT-1 *Teal* was also produced under a Navy order. The *Teal* is the country's first rocket-powered target drone. It has been successfully flight-tested numerous times since its initial flight in September 1957 at the Naval Air Test Center, Point Mugu. Resembling a missile in shape, it uses solid-propellant fuel and is designed to operate near the speed of sound at altitudes up to 50,000 feet. The XKDT-1 can be launched from sweptwing aircraft and can serve as a target for air-to-air missiles or other defensive devices carried by Navy planes.

Temco is encouraging careers in science and engineering by awarding math and science cups to the outstanding student in each secondary school in Dallas County. Temco has also supplied aircraft engineers to teach physics in four schools.

Temco Aircraft Corporation today is a far cry from the three hundred staunch employees who set up shop in part of a building a little over 12 years ago. Three humming plants and well over 8,000 workers prove it!



INTERIOR VIEW OF THE DALLAS FACILITY SHOWING THE TT-1 FINAL ASSEMBLY LINE

MR. J. D. PEACE, GOODYEAR AIRCRAFT, AND LCDR. A. A. LEMESHEWSKY STUDY NEW GUIDE

SAFETY PROJECT LAUNCHED

A THREE-DAY conference at NAS NORFOLK has launched an accident prevention project inaugurated by the U. S. Naval Aviation Safety Center. Naval officers and representatives of some 21 prime naval aircraft and engine contractors attended the safety conference.

The efficient use of naval aviation statistics was fully discussed and explored. Before calling the conference, the Naval Aviation Safety Center had furnished two aircraft manufacturers, on an experimental basis, machine records concerning material failure, maintenance error and design deficiency. The experiment with two manufacturers indicated that the Center was on the right track and that the manufacturers would find valuable the accident data made available to them.

The new project is aimed at further reduction of the Navy's record low aircraft accident rates in fiscal years 1956 and 1957.

RAdm. Allen Smith, Jr., Director of the Center, opened the conference: "We believe this to be the first large scale, systematic effort on the part of a military service to supply major manufacturers with material and design accident data on a regularly scheduled basis. The expansion of machine records facilities at the Naval Aviation Safety Center has made this important safety contribution possible." He pointed out that efforts in the past were hampered in part by the magnitude of data and lack of facilities for adequate processing.

"More than one-fourth of our major naval aircraft accidents recorded yearly, and nearly 50% of our incidents, are caused by material failure, maintenance error, or design deficiency." This system, RAdm. Smith indicated, "will do much to speed correction of material failures and improve design of vital aircraft components, and round out the Navy's extensive safety program directed at preventing aircraft accidents before they happen."

The program is counted upon to assist materially in counteracting the potential accident trends in the Navy's continuing transition to higher performance jet carrier aircraft. In addition to the manufacturers who attended the conference and participated in round table discussions, participants included representatives of the Chief of Naval Air Training, Commander Naval Air Forces Atlantic, Commanding General Aircraft Fleet Marine Force Atlantic, the Bureau of Aeronautics and the United States Air Force.

At the conference, the new "Aviation Safety Officers Guide" was introduced. The Guide is a handy compendium of special safety knowledge prepared and published by the Naval Aviation Safety Center.

The conference included group discussions, a review of the method of operation for the accident prevention project and discussion of future plans.

Cdr. R. C. Truax Honored

Cited for Work in Missile Field

Cdr. Robert C. Truax, a naval officer assigned to the Air Force Ballistic Missile Division, Inglewood, Cal., has received the Legion of Merit by direction of the President of the United States, from BGen. O. J. Ritland, Vice Commander of the Division.

Cdr. Truax was cited for his services in pioneering and advancing the Navy's

BGEN. RITLAND GIVES TRUAX HIS AWARD

efforts in the field of guided missiles and rockets.

He was further cited for his performance of duty while assigned to BUAER as Head of the Ship Launched Branch from 11 June 1953 to 21 June 1955. During that time, Cdr. Truax independently made a study titled, "A Means for Making the Guided Missile Submarine a Primary Naval Weapon."

Cdr. Truax's study contained most of the elements of the U. S. Navy's current Fleet Ballistic Missile Program.

'Black Diamonds' Shine

High Scores Made at El Centro

VA-216 was highly successful in its El Centro deployment. *Black Diamond* pilots rang up a total of 45 E scores in competitive exercises — loft bombing, masthead, dive bombing (both day and night), rocket firing, strafing and profile flights.

High scorer was Lt. Robert G. Ehrman who distinguished himself by qualifying for an E in six out of seven events. Close on his heels were Ltjg. Jack Borsum and Cdr. Hope Strong, Jr., VA-216 skipper, each with five E's.

The squadron had the honor of making the first run at the official opening of the new instrumented loft bombing range at NAAS EL CENTRO.

Barin Starts PO Academy

Leadership, Confidence Stressed

A Petty Officer Academy has been established at NAAS BARIN FIELD to conduct a refresher course in leadership and military fundamentals for station petty officers.

The academy was conceived as a stepping stone toward a more comprehensive school program. Its mission will be to enable the petty officer to better assume his role in the chain of command.

In doing this, the school will train the petty officer in military bearing, forcefulness and self-confidence, refresh him in the fundamentals and techniques of effective leadership, and develop the esprit-de-corps requisite to an effective petty officer corps.

"We are not trying to make leaders," says Lt. Kenneth R. Bailey, Jr., "Commandant" of the Academy, "but simply to strengthen and refresh the ones we already have. In particular we are emphasizing the military aspect of Naval service in an attempt to strike a better balance between professional and military duties."

LATEST *in flying wear—an oil-painted helmet. When VFP-62 pilot, Ensign C. L. Sykes couldn't get an insignia decal to adhere, Rich Gorinch, SN, solved the dilemma easily by painting a perfect duplicate of the design.*

Dispersal Drill Smooth

Fleet Moves Out of Harbors Fast

The signal was given, the men were aboard, the steam was up, and ships began to move out of San Diego and Long Beach harbors. *Branding Iron*, an exercise in ship dispersal, had begun at 0600.

Adm. Felix B. Stump, Commander in Chief, Pacific, and Pacific Fleet, originated the exercise from his Pearl Harbor Headquarters, and VAdm. Robert L. Dennison, Commander First Fleet, headquartered at North Island, commanded *Branding Iron*.

No warning was given the ships or the Flag Staffs aboard ships, but all was carried off as if it were routine. No accident marred the dispersal. After the ships had made a sortie from their ports, they joined at sea and formed into task groups. By 1300 the operation had been successfully completed.

From his flagship, the USS *St. Paul*, Adm. Dennison said, "We are pleased with the results of Exercise *Branding Iron*, the fleet dispersal drill. Held without warning, the exercise involved approximately 60 ships getting underway from Long Beach and approximately 56 from San Diego. The results . . . should aid significantly in determining mobility and preparedness plans."

Ships participating in the exercise ranged from attack carriers to fleet tugs. Among the major ships were attack aircraft carriers *Shangri-la, Bennington, Hornet;* antisubmarine carrier, *Philippine Sea,* and cruisers *St. Paul, Toledo, Worcester, Columbus.*

Newer Crusaders Ordered

Additional F8U-1's are Purchased

A $200-million contract has been awarded Chance Vought Aircraft for production of the F8U-2 and for continued production of the F8U-1.

An additional $100-million contract has been awarded for production of the F8U-3 *Crusader*, an advanced all-weather jet fighter.

The F8U-3 is designed to intercept enemy bombers under any weather conditions at more than twice the speed of sound. A contract for its development was awarded in 1957. Powered by a Pratt & Whitney J-57 engine, the F8U-3 is scheduled for flight test next summer and delivery in 1960.

The F8U-2 is equipped with the new Pratt & Whitney J57-T-16 engine and will have better performance than the F8U-1 which won the Thompson Trophy with a speed of 1015 mph.

The F8U-2 will have an improved fire control system and additional radar capabilities. A virtual flying arsenal, it will carry heat-seeking *Sidewinder* missiles mounted externally like the F8U-1 as well as cannon and 2.75 inch rockets.

The only change in appearance will be addition of two fixed low-aspect-ratio ventral fins mounted on the tail cone above the unit horizontal tail of the F8U-2. Like the F8U-1, it will have a two-position wing.

New radar equipment to be used in the F8U-2 will also be incorporated in the F8U-1 which has joined Atlantic and Pacific Fleet units.

The F8U-2 production model is expected to make its first flight in September 1958. It will then supplement the large number of *Crusaders* scheduled to serve with fleet units.

GRUMMAN F11F-1 *Tiger packs a mighty wallop, the deadly Sidewinder air-to-air missile. The carrier-based fighter, first to incorporate the "area rule" (pinched waist) concept in its fuselage design, has recently completed a full demonstration of its Sidewinder launching capability in all flight conditions. The Sidewinder is a Navy infra-red weapon that can be used by current carrier-based fighters and attack aircraft to augment their offensive capabilities.*

WEST END CHEMICAL COMPANY PLANT IN CALIFORNIA IS ONE OF MAJOR SUPPLIERS OF BORON, KEY INGREDIENT IN EXOTIC FUELS

EXOTIC FUEL = ZIP PERFORMANCE

So much progress has been made in the research and development of high energy fuels and propellants in the last five years that qualified scientists now envision radical improvements in aircraft propulsion and, with improved propulsion, even changes in aircraft design.

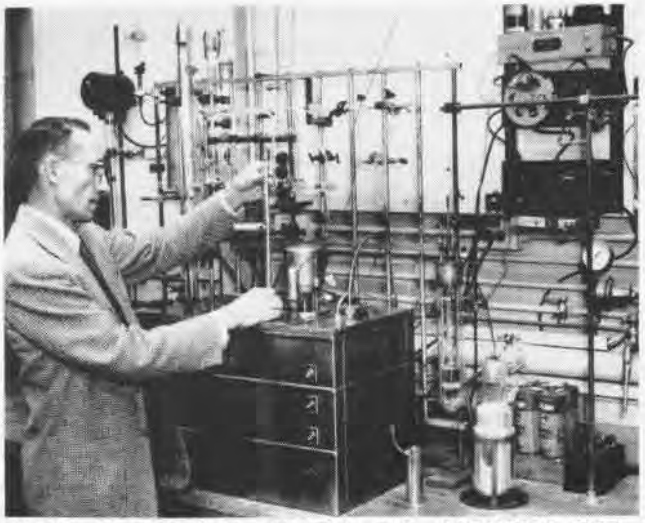
With such breakthroughs in fuel technology has come a new phrase—*Exotic Fuels*—coined by a news writer and heard more and more frequently among members of the aeronautic fraternity.

A fuel which will burn efficiently over a wide spread of fuel-air ratios has been developed. With such a fuel, the problem of flame-out at high altitudes should be much less severe. In tests, exotic fuels continued to burn efficiently as altitudes exceeded the point in the earth's rarefied upper atmosphere where hydrocarbon fuels tend to sputter and flame out from lack of oxygen.

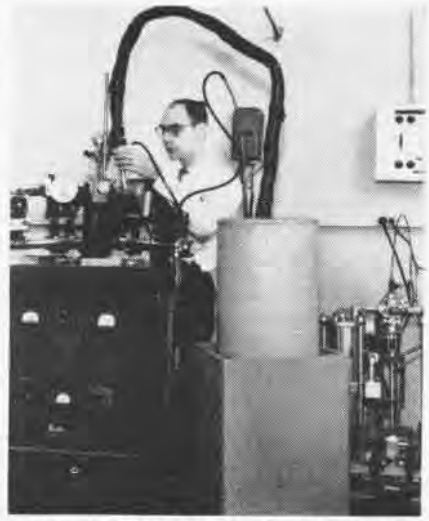
This break-through in fuels means that future aircraft can be expected to operate successfully at altitudes higher than are now feasible.

In certain applications, these fuels are capable of giving aircraft as much as twice the range of those using conventional aircraft fuels. By deduction, this means that lighter airframes can be designed to carry equal payloads, that the same airframe can carry the same payload a greater distance or a heavier payload the same distance, or that a compromise can be worked out to give an aircraft greater speed or climb potential.

It means by analogy that a horse may soon be chosen to eat the oats, instead of the conventional approach of choosing oats to feed the horse.



BUREAU OF STANDARDS SCIENTISTS RUN LABORATORY TESTS ON EXOTIC FUELS DURING EXPERIMENTAL STAGE OF PROJECT ZIP



CHEMISTS STUDY PURIFICATION, MEASURE HEAT OF COMBUSTION AND CHECK CRYSTAL STRUCTURE OF BORON FUEL COMPONENTS

The exotic fuel described herein is called HiCal. It is basically a combination of three elements: boron, hydrogen and carbon. Other ingredients, the mixture technique, the retardants and additives used, are of necessity classified.

Hydrogen is a gas that burns with a greater heat of combustion per pound than any other pure material. Boron is the most efficient carrier of hydrogen and it therefore assumes the role of vehicle in the compound. It, too, is lightweight and burns efficiently. Carbon, in addition to being combustible, is used in the compound as a stabilizer to permit easier, safer handling and use.

In liquid form, the new fuel has been tested in jet and ramjet engines by the NACA Lewis Propulsion Laboratory in Cleveland since 1952.

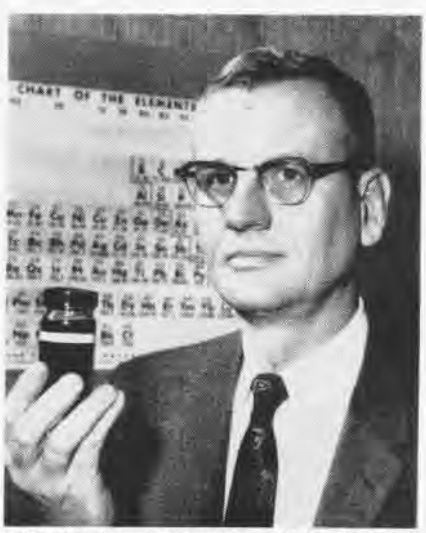
The Callery Chemical Company announced December 3 that a further technical break-through had been made and that a new rocket fuel using the same basic ingredients was being developed in solid form.

To be completely usable, any fuel must possess certain basic characteristics. Among these, its flash point must be low enough for safe storage and it should not give off uncontrollable toxic fumes which might endanger the lives of men who will put it to use.

HiCal, in its liquid form, has a flash point between that of aviation gasoline and JP-5 jet fuel. It can therefore be stored safely in the outer bunkers of an aircraft carrier when engines have been designed, perfected and tested to burn exotic fuels satisfactorily.

But since shipboard crews, especially in submarines, have to literally live with the fuels they use, a solid propellant that does not give off toxic fumes is much more desirable for a ship-launched rocket or missile. Callery's announcement of progress in solid propellants is therefore of greater consequence to non-carrier aviation and rocketry than it is to so-called conventional aircraft.

Exotic fuels research for military application was begun by the Navy in 1948 and BuAer launched *Project Zip* in 1952. At that time, two prime contractors were authorized to research and produce high energy fuels and propellants; the Callery Chemical Company of Pittsburgh and the Olin Mathieson Chemical Corporation of Niagara Falls.



CALLERY VP SCHECHTER, HICAL PIONEER

Simultaneously, plans were made to design engines which could burn exotic fuels as soon as it became evident that they could be successfully developed. Service use of *Zip* fuels cannot be expected until such an engine is perfected.

In launching *Project Zip* in 1952 BuAer started an intensive search for a practical high-energy fuel, for methods to produce such a fuel, and for the development of engines and weapons systems to use the fuel if one could be found. An intensive research effort on boron chemistry began.

Chemists started from the known boron-hydrogen compounds of diborane, a toxic gas, and pentaborine, an extremely toxic liquid which is spontaneously flammable in air. New compounds were sought which could be handled in a practical manner and yet would retain the high-heating value of the original boron hydrides.

At the peak of research, 21 commercial subcontractors and 43 universities were engaged in work under *Project Zip*. Millions of dollars were poured into the research effort and a technical break-through was made. Both contractors, using different methods, discovered a new series of compounds containing carbon in addition to boron and hydrogen. These compounds were more stable, less toxic, and had a higher density than their predecessors.

More refined versions of these early *Zip* fuels are being developed in pilot

plants designed to explore production processes and techniques for the larger plants being constructed.

Research work on high energy fuels has led to the discovery of several compounds that have commercial and industrial applications. Among some of the uses for boron chemicals are organic reducing agents, gasoline additives, high temperature lubricants, plasticizers and fire extinguishing agents.

The Air Force took over the Olin Mathieson contract in June 1956. The programs of both services have since been coordinated closely to speed the ultimate production of exotic fuels and save government money.

Two chemical plants for limited production of boron fuels have been authorized at a cost of about $35 million each. Their initial outputs are being devoted to an intensive, closely coordinated effort by both the Navy and Air Force to develop engines for aircraft and missiles. Both plants are expected to be in full operation in 1959.

Meantime, tests are underway at the NACA Lewis Flight Propulsion Laboratory to have an engine ready to burn exotic fuels as soon as they are available in quantity. Results of NACA tests are turned over to aircraft engine manufacturers.

To support the objectives of *Project Zip* it was necessary to learn the availability of the principal raw material, boron ore. The U. S. Department of Interior Geological Survey began an extensive program of drilling, mapping, data research and evaluation in 1952.

It has been estimated, as a result of this work in America and abroad, that more than 75 percent of the world's economically recoverable reserves of borax and other boron ores are located in the California-Nevada desert. These reserves are adequate to supply the *Zip Fuel* program for many years to come.

Using the limited amounts of high energy fuel available to date, NACA has made some significant advances in conducting new engine development.

The National Bureau of Standards has maintained a continuing program of support in the basic sciences of physics, chemistry, thermodynamics and measurement. Their scientists have supplied the basic building blocks of molecular structure and precise physical properties of the important fuel products and intermediates first isolated in private contractor laboratories.

The most promising high-energy fuels are moving out of the research phase and into limited production. Costs are high, indicating in part why the name "exotic" has been applied to the *Zip* fuels.

Research engineers realize, however, that cost is a necessary factor in the development of any revolutionary product. Their logical assumption is that when high energy fuels are perfected and engines capable of burning these fuels have been placed in operational use, the term exotic will change context to mean exotic *performance*. Early costs will be fully justified, they feel.

The principal problems of engine design encountered to date have been corrosion, erosion and exhaust deposits in the test engine. Further problems have been experienced in developing non-reacting seals and elastomers.

In announcing that HiCal fuels were being developed in solid form, a Callery Company official predicted: "The significance of this development is that it will combine the most efficient type chemical fuel with the most efficient rocket design, since a rocket with solid propellant requires no fuel transfer mechanism. The result should be a super-efficient rocket."

Callery said it had established a solid fuel group at its research and development division.

Dr. George Huff, Callery's director of research and development, said that HiCal is about the most efficient chemical fuel that it is possible to develop in practical quantities.

"The next step is nuclear fission or fusion," he said. "However, it is possible to increase efficiency of missiles by lessening their weight and making them less complicated. This can be done by producing HiCal in solid form."

He explained that solid propellants are "built in." This cuts down weight, since pumps are not required for fuel transfer, and reduces the time required to prepare such a weapon for launching.

MEANS OF USING EXOTIC FUEL IN AIRCRAFT AND ROCKET ENGINES ARE STUDIED AT NACA LEWIS ROCKET ENGINE RESEARCH LAB

NEW PUBLICATIONS RELEASED

FOUR NEW publications, designed to afford a comprehensive and readable slant on some of the major aspects of Naval Aviation, have been issued by CNO. They are being distributed via the usual channels.

The four pubs, dealing with all weather flight, aircraft support and flight safety, present a "working level" treatment of their respective subjects and are geared for training programs and operational use.

All Weather Flight Manual (NavAer 00-80T-60)—A reissue, this manual cancels and supersedes NavAer 00-80T-37. Divided into three major categories, basic instruments, all weather flight operations and aerology, the 32 chapters contain a detailed rundown on all phases of instrument flight theories and procedures.

Basic instrument and radio range procedures pertaining to jet aircraft are covered fully in the manual. In addition, chapters concerning Omnirange (VOR), Assistance from Ground Stations, and World Weather and Climate have been expanded considerably to include current information.

Handbook For Aircraft Accident Investigators (NavAer 00-80T-67)—Prepared by the U. S. Naval Aviation Safety Center, this manual is intended to enable an aircraft accident investigator to conduct a comprehensive, educated and thorough investigation.

Methods for identification and assessment of evidence obtained from wreckage are explained thoroughly, and the various factors essential to accident analysis are detailed in the handbook.

Aviation Safety Officers Guide—Prepared as a supplemental outline for use in planning a sound accident prevention program, the squadron Aviation Safety Officer will find this booklet an invaluable assist in determining the major areas of safety that need local development or emphasis.

The booklet covers department organization, the role of the Safety Officer as an educator, furnishes a full set of monthly safety themes and spells out the medical and maintenance aspects of aviation safety.

Usage Data (NavAer 00-80Q-44)—Sub-titled *The Key to Aircraft Support*, this booklet points up the continuing need for accurate and intelligent use of Maintenance and Overhaul Usage Data Forms. The more common discrepancies are highlighted; along with general recommendations which, if followed, will ensure the average squadron a ready supply of garmocouples, anticipators, exciters et cetera.

Still another publication is proving popular with training officers, *Visual Aids, NavAer 00-80T-63*, which covers the subject thoroughly—what aids are, what they can do and how to use them. Since tests prove that information received through ear and eye is retained far, far better than that obtained only by ear—in fact, more than six times better—the value of using visual aids is undisputed. How to use them is the theme of this handbook, previously announced in *Naval Aviation News*, January 1958.

Use of visual aids is so important in training today in the Navy that the book ought to be valuable reading for every single instructor.

Photo System Developed

B-58 Hustler Will Use New System

A new photographic reconnaissance system has been designed by Fairchild for use in the Convair B-58 Air Force supersonic bomber. The system is contained in a detachable pod which can be interchanged for bombing or electronic countermeasure pod systems.

All cameras in the system are new designs, built to function at supersonic speeds at both extremely high and low altitudes.

Closed circuit television is employed in a photo-reconnaissance system for the first time, providing the photo-navigator with an unobstructed view of the forward terrain in sufficient detail to permit him to identify significant landmarks and targets.

A camera control system functions automatically or can be controlled manually from a remote panel within the aircraft. Using information from the plane's navigational system, it controls camera drive so exposures in all cameras are made at a rate which provides 55 percent overlap on each photo for stereo viewing. The system provides synchronization so exposure occurs at the same instant.

GETTING SCOOPED! *Marine Sgt. W. M. Hughes, a simulated casualty, draws a free ride as he takes part in the evaluation trials of a new helicopter rescue hoist at Camp Lejeune, N. C. Employing the air-sea rescue method recently developed by the Naval Medical Field Research Laboratory, the 'copter lifted Sgt. Hughes by coming up behind and using its net as a scoop.*

VS-39 PROVES ABLE DEFENDER

NO REST FOR SUBS AS VS-39 AIRCRAFT ARE LAUNCHED IN THE MEDITERRANEAN EXERCISES

OPERATING with the Sixth Fleet in the Mediterranean, Air Anti-Submarine Squadron 39 has proved adept in its hunter killer role.

During one exercise, VS-39 flew off the carrier USS *Leyte*, CVS-32. The *Leyte* was accompanied by six destroyers. The ASW units were assigned the task of guaranteeing safe passage to numerous ships transiting the Straits of Sicily. Waiting to thwart ship movement were seven submarines from the United States, France and Great Britain.

In four consecutive days of round-the-clock operations, the anti-sub units clearly indicated how powerful was their defense against underwater threats. Twenty-eight of 33 valid sub contacts resulted in successful "attacks." Of these, 12 were credited to VS-39 aircraft as unassisted, and five more resulted from the combined efforts of the aircraft and destroyer surface attack units.

Top Sub Killer was Ltjg. A. L. O'Toole who was credited with successfully attacking three submarines in two and a half hours. He made the first score at dawn on the second day of the exercise when a radar contact was identified by searchlight as a snorkling submarine.

An hour later another radar contact revealed a submarine and numerous simulated attacks followed. Only later did O'Toole learn that his last attacks were acknowledged as successful by two submarines. These have recently joined forces to employ "wolf pack" tactics against the transiting ships.

VS-39's maintenance crews came through with an equally fine record. No launch was missed and at times two-thirds of the squadron was airborne. The squadron also made an excellent safety record.

Not only did VS-39 participate in the exercises in the Straits of Sicily, but it was part of *Strike Back* in the North Atlantic and a similar exercise off Crete. VS-39 plans to participate in Operation *Springboard* this year.

Cdr. W. P. Robinson, Jr., is CO of VS-39, and the home base of the squadron is NAS QUONSET POINT, R. I.

THEY MADE THREE HITS IN ONLY 2½ HOURS

Woman Pilots Navy Blimp
Achieves Dream at Lakehurst

One of the grand ladies of aviation helped fly a Navy airship at Lakehurst, culminating 27 years of flying.

Mrs. Constance Wolf of Blue Bell, Pa., a licensed aviatrix, took the co-pilot's seat of a K class "blimp" and became one of the very few women ever to fly an airship in this country.

Mrs. Wolf, at 52 years of age, has now flown most existing types of aircraft; both heavier-than-air conventional aircraft, helicopters, lighter-than-air free balloons and airships.

Under the supervision of Ltjg. Charles H. Tall III and Andrew Devine, AMC(AP), the actual pilots of the "blimp" which was on a training flight, Mrs. Wolf showed great promise as an airship pilot.

An addict of ballooning, Mrs. Wolf is the only woman free balloon pilot licensed by the CAA. The lady balloonatic (as she prefers to be called) who first flew in an OX *Challenger* back in 1930, is a founder and vice president of the Balloon Club of America. The Club, a band of intrepid adventurers from Philadelphia, meets regularly to fly its cooking-gas-filled balloons. Last summer club pilots competed in an international balloon race in Holland.

A friend of Mike Todd's, she sailed the balloon used in "Around the World in 80 Days," over London and Paris to advertise the film. It was originally a Navy balloon at Lakehurst.

Just 'Navy Ingenuity'
Celestial Trainer for Proficiency

Ltjg. John Gauer, VP-6 navigation officer, has made a training device with some very simple materials. His celestial trainer, an old table and a mount, was put together to help VP-6 pilots "shoot" their required two-star fixes once every two months.

The star fixes are designed to insure that pilots and navigators maintain proficiency in celestial navigation. However, as the only place a periscope sextant can be used (without a mock-up) is in the aircraft, hard-worked pilots and navigators seldom had the time. This training device neatly solves that problem.

GAUER CHECKS OVER HOME-MADE TRAINER

CAPT. WARE PRAISED THESE INSTRUCTORS

Instructors' Safety Cited

They Practice What They Preach

Five flight instructors at NAAS SAUFLEY FIELD have been presented 1000-hour safety awards by their Commanding Officer, Capt. Robert M. Ware. The quintet was composed of Naval Aviators attached to Basic Training Group One.

Each man has flown over 1000 "accident-free" syllabus hours instructing student aviators.

Capt. Ware (extreme left) presented the awards to (left to right) Ltjgs. E. B. Del Aguila, M. E. Zophy, R. W. Moore, T. J. Kehoe, N. R. Kelly.

Private Eye is Developed

Accuracy of Guns Quickly Checked

An electronic "private eye" that investigates the accuracy of an interceptor aircraft's guns without firing them has been developed by Westinghouse under a BUAER contract.

The tester was designed for a specific armament control system and for a particular Navy all-weather interceptor, but it can be adapted to most aircraft with all-weather capability. It weighs less than 15 pounds and is built into the plane as part of the electronic fire control system.

A six-step check-out process involves feeding artificial radar signals into the system under test to simulate combat conditions. The test equipment gives a realistic problem to the gun-aiming system, so that the pilot or technician can tell within minutes if separate components are working properly by interpreting the signals that appear on the radar cathode ray tube mounted in the plane's cockpit.

Using the pre-flight test unit, a pilot can practice dry runs without leaving the flight deck. Either practice or testing can be done during periods of fleet blackout without fear of detection since the radar does not release any energy into space.

Three Thousand Trained

Saufley Field Celebrates Total

Saufley Field celebrated a milestone in Primary Flight instruction when it honored Ens. Morgan M. France, the 3000th student to complete the course.

The young man was lauded by Capt. Robert M. Ware, CO of NAAS SAUFLEY FIELD, and by Cdr. M. C. Friedman, Group Commander of Basic Training Group One. Lt. Frank J. Moran who flew with France on his final check flight, said, "He gave me a very good ride."

Saufley began its instruction of Primary Flight students the latter part of October 1956. The field has established a new record by graduating 3000 to other phases of their training in little more than a year.

A Mouse Learned Too Late

Hutchinson's 'Better Mouse Trap'

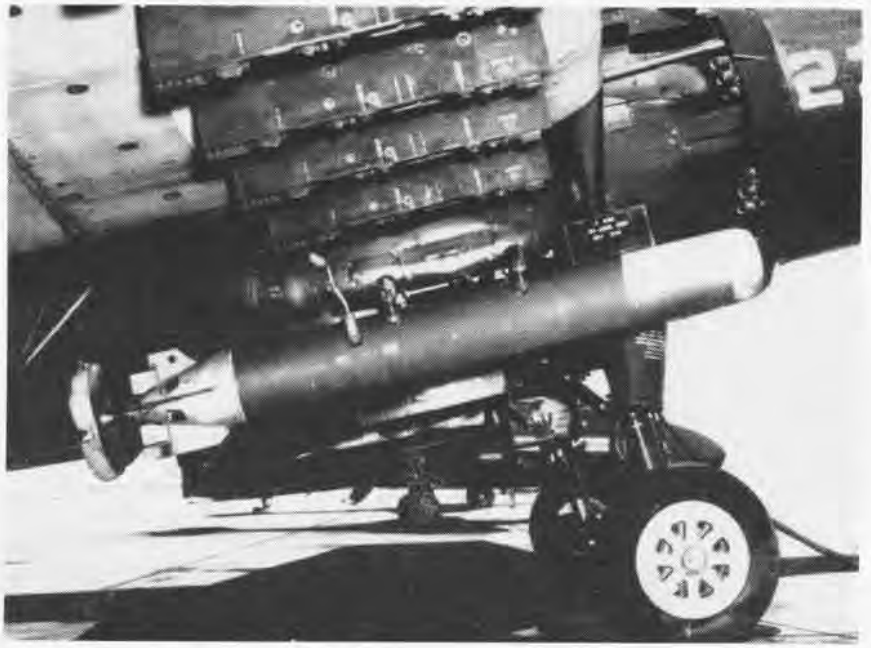
"Build a better mousetrap, and the world will beat a path to your door," an American philosopher once said. Many people may build better mousetraps, but none as expensive as the $350,000 one at NAS HUTCHINSON.

HERE'S WHERE CHIEF BROWN FOUND MOUSE

A certain field mouse sought shelter from cold afternoon winds. He finally picked the Ground Control Approach Unit at Hutchinson. He thereupon climbed between three tubes and put himself and the GCA out of action.

After a half-hour search for the trouble, Chief Electronics Technician John G. Brown located Mr. Mouse, already burned to a crisp. Three new tubes were put in and the Unit was again in operation.

GCA personnel have decided their unit needs a few dime store mousetraps. They agree $350,000 is too high a price to pay to catch a mouse.



THE NAVY'S LATEST *acoustic torpedo, the Mk. 43, developed by the Navy can drop into the sea, track down and sink submarines. It is already operational with the fleet. Constructed of light weight materials, it can be launched as easily from aircraft as from surface ships. The acoustic-homing type torpedo is actually a submersible guided missile and is capable of searching to great depths for enemy targets. It was developed for BuOrd by the Clevite Corporation.*

LET'S LOOK AT THE RECORD

Their Total is Grand

VA-106 Pilots Bring Home 42 E's

Gladiators of VA-106 scored well in a deployment to Guantanamo Bay. They returned to Cecil Field with 42 Navy E's.

During a five-day period, VA-106 pilots flew their *Cougars* 841 sorties while compiling 679.6 flight hours. The squadron and line crew maintained 97.6% availability.

Triple E winners were LCdr. W. G. Horton, LCdr. C. R. Bradford, Lt. J. T. Biles, Lt. H. J. Englehart, Lt. L. F. Eggert, Lt. W. W. Smith and Ltjg. R. A. Smith. Cdr. A. O. Morton, Commander of Air Group Ten, also brought home three E's.

Lands Aboard the Intrepid

20,000th Landing on Angled Deck

When Lt. W. A. Ashley of VA-104 landed his AD-6 on the decks of the USS *Intrepid*, it was more than just another landing checked off in his carquals.

On the *Intrepid*, it marked another "thousand," the 20,000th landing made on the new angled deck of the attack carrier.

Ashley's squadron was one of several units that participated in a three-week operation off the Virginia Capes. Night operations were also part of the very heavy schedule.

Jax Aerology Commended

High Rate of Accuracy in Reports

Citing of Jacksonville Aerology Division of the Operations Department for exceptional weather observation was the subject of a letter sent to Capt. Elliott W. Parish, Jr., commanding officer of NAS JACKSONVILLE.

The commendation from CNO was based on the latest six-month summaries of errors in meteorological surface observations received from the National Weather Records Center, Ashville, N. C.

Less than one-half of one per cent error was recorded in the Division's reports sent to the Record Center. Of the 89 shore activities submitting similar information, only four others had as low a discrepancy rate as Jax aerology.

Commander D. N. Sellers, aerological officer, heads the Division. He is assisted by LCdr. C. G. Browman.

Randolph Awarded Battle E

VAdm. Charles R. Brown Officiates

VAdm. Charles R. "Cat" Brown, Commander Sixth Fleet, presented USS *Randolph* (CVA-15) with both the coveted Battle Efficiency E Award and the Chief of Naval Operation's Aviation Safety Award for 1957 during a formal ceremony held aboard the carrier at Athens, Greece.

In addressing the crew, VAdm. Brown remarked, "Many good ships have bad luck, but no bad ship would ever have the good luck to win awards."

The *Randolph* earned the E award by topping all Atlantic Fleet attack carriers in efficiency in battle exercises and drills during fiscal 1957. Her outstanding aviation safety record won her the CNO award.

A third award, the "Yellow E" was presented Cdr. Jack James' air department for special efficiency in 1957 operations.

Capt. Louis J. "Bullet Lou" Kirn, Commanding Officer of the *Randolph*, stated at the close of the ceremony, "I am sure that the present crew is capable of winning the 1958 Battle E."

THESE PILOTS *of Fighter Squadron 21 were among the first to fly Grumman F11F's from an aircraft carrier. The squadron joined USS Ranger to take part in the final four weeks of her shakedown cruise in the Caribbean. Based at NAS Oceana, the squadron received the final two of its 13 Tigers only one day before departing for Guantanamo. For four months prior to boarding the Ranger, pilots were familiarized with their planes. On arrival at Leeward Point they flew four weeks of air-to-air gunnery for a total of 657 hours, and fired more than 25,000 rounds of ammo. First to land aboard the carrier were LCdr. J. L. Holbrook, squadron commander, and Cdr. A. K. Earnest, CATG-181.*

Fluoroscoping for Flaws

CVA Says Time and Money Saved

Fluoroscoping of aluminum and magnesium castings for flaws saves time and money according to Chance Vought Aircraft who have tried out for 20 months a new Navy fluoroscope.

The high intensity fluoroscope, developed by Naval Ordnance Laboratory at White Oak, Maryland, for the Bureau of Aeronautics, was loaned to Vought for an extended field test of its capacity to detect casting defects. For most cases, fluoroscopy was recommended over more expensive x-ray inspections. Approximately 2000 light alloy castings were examined on the fluoroscope's viewing screen during the test program. Among them were a number of parts found defective after x-ray inspection had been completed.

The Navy fluoroscope provided castings to be placed inside a large plastic "bubble" with toy rubber balloons around it to hold it in position for inspection. The bubble with the casting enclosed can then be rotated whereas x-ray photography usually is done in two planes.

The cost of fluoroscopy is considerably less. In one instance a casting was inspected by both methods. One cost 16 cents to inspect by fluoroscope, and 80 cents by the x-ray.

Safety Awards to all Hands

Ninety Presented at Cubi Point

A "Safetyman's heyday" was celebrated at NAS CUBI POINT when 90 awards were made to civilians and military by Capt. C. E. Houston, CO.

Forty-five Filipino and nine American Bluejackets were presented the U.S. Navy's Safe Driving Award in recognition of their outstanding achievements in careful driving. All men drove over 51% of their full working time and had no accidents during the year.

Shop Industrial Accident Prevention Awards were made to 23 divisions within three departments on the air station. These safety tributes were made in acknowledgement of the fact that none of the shops had a disabling injury during the last 12 months.

Individual Industrial Accident Prevention Awards were made to seven Filipino and six American public works shop supervisors for leadership and performance for the year.

ASST. SECNAV *J. Sinclair Armstrong steps into cockpit of F9F-8T before taking off from NAS Miramar on his first supersonic jet ride. LCdr. Jack L. Felsman of instrument training department, FAWTU, Pacific, was pilot.*

HEAVY ATTACK *Squadron Five sent two A3D crews to Key West for aerial mine-laying. According to VAH-5, this was the first time an A3D had mined in the Atlantic Fleet.*

SECOND MARINE *Air Wing helicopters lift a 1740-pound lantern to the top of Oak Island Lighthouse near the mouth of Cape Fear River at South Port, N. C. The operation helped complete first area lighthouse in 54 years.*

Cakes and Still More Cakes

Essex Lives it up with Frosting

During the Korean conflict, the USS *Essex*, CVA-9, earned the title of "Cake Bakin'est Ship in the Fleet." Recently she strengthened her hold on the claim by turning out cakes as rapidly as the cooks could mix them.

The occasion for this flurry of flour was a series of record landings, one after another.

Ltjg. John Boswell of VAAW-33 landed his AD-5N aboard to log the 77,000th landing.

A few days later, the "Lucky Seven" or 77,777th arrested landing aboard was scored by Lt. C. Z. Webb flying one of VF-11's F2H-4 *Banshee*. The cake was divided among the arresting gear crew.

Scarcely were the crumbs swept up when an FJ-3 of VF-62 ground to a halt on the flight deck and the number 78,000 was entered in the log. To Lt. K. F. Herrington went this one, and the flight deck crew gathered quickly to consign the cake to memory.

Instructors are Honored

Safe Record 27 Made is Recognized

Twenty-seven instructors of Advanced Training Unit 614, NAS HUTCHINSON, who have flown 1000 accident-free hours with the unit are being given special recognition by the 614 Safety Office. The office has put up a board to honor the instructors who have maintained such a record.

Those receiving the initial honor are: Lt. D. R. Davenport; Lt. H. G. Phelps; LCdr. R. D. Snyder; Lt. J. J. Saniuk; Lt. J. T. Staup; Lt. D. E. Malone; LCdr. W. M. Haff; LCdr. B. M. Batchelder; Lt. C. W. Hines; Lt. F. D. Bateman; Lt. P. L. Milius; Lt. F. Zeier; Lt. R. C. Balchunas; Ltjg. D. F. Martin; Ltjg. C. H. Nordhill; LCdr. H. E. Wolking; Ltjg. J. A. McClure; Lt. J. W. F. Rossoe; Lt. N. B. Land; Lt. A. T. Redel; Lt. J. W. Elliot; Ltjg. W. G. McIntire; LCdr. W. T. Petersen; Lt. J. L. Bowden; Lt. P. G. Griffith; Lt. B. L. Simpson and Lt. A. J. Alexander.

"These men have all been with the unit a year," said Cdr. Winton C. Sharpe, O-in-C of ATU-614. "We have many instructors with perfect safety records, but who have not been here long enough to accumulate 1000 hours of instruction in the P2V."

FAST PACE FOR FIGHTER PILOT

USS YORKTOWN *(CVA-10) heads into wind for air operations. This is a picture story of a day in the life of a Yorktown fighter pilot.*

REVEILLE *on the Yorktown signals the start of an active day for Lt. Eldred L. Whitlock, Banshee pilot, shown here in his stateroom.*

MORNING BRIEFING *for the day's operations is held in carrier's ready room where Whitlock and fellow pilots check charts, await "word."*

A STUDY *of the pertinent area chart in which operations will be held is standard procedure for Whitlock and other VF-193 pilots.*

THE COMMAND, *"Pilots Man Your Planes!" sends Whitlock and squadron mates scurrying along flight deck to man their planes for day's flight. Potential enemy attack capability requires interceptor pilots to stay in peak shape for boarding planes on short notice.*

IN COCKPIT, *Lt. Whitlock gives the Banshee a final check while a member of Yorktown's gas crew tops the plane off for long mission.*

AS WHITLOCK *takes off, deck crew gets prepared to launch an F9F-8 Cougar. Ship can launch ready planes on "cats" four seconds apart.*

RETURNING *pilot takes a "bolter," goes around again. Angled decks, mirror landing system, steam "cats" make carrier operations safer.*

WINGS FOLDED, *Whitlock's Banshee takes elevator to the carrier's hangar deck where maintenance crew will ready it for next mission.*

SOLITUDE *of a calm sea is in marked contrast to swift pace required of a fighter pilot but it provides relief from flight strains.*

DAY ENDS, *as it began, in the privacy of his stateroom where pipe-smoking Lt. Whitlock finds time to write a letter to wife at home.*

A NEW BASE IN THE OLD WORLD

THIS IS THE SEAWARD END OF THE PARTIALLY COMPLETED FUEL PIER AT THE SITE OF THE FUTURE NAVAL AIR STATION AT ROTA

RISING OUT of an ancient vineyard region on Spain's southern Atlantic Coast, is one of the Free World's major bastions. The fast-growing naval base at Rota, like other United States bases in Spain, flies the Spanish flag. A Spanish Navy captain is in command of the entire base area; a U. S. Navy captain commands American activities.

Mutual Defense, Economic Aid and Defense agreements signed in 1953 by the American and Spanish governments provide the basis for the installations at Rota. Its facilities, on completion, will make it one of the world's most modern warship and aircraft support stations.

Rota is ideally situated to support Eastern Atlantic and Sixth Fleet operations. The base on the Atlantic is only 60 air miles west of Gibraltar. At Rota a Navy fuel depot services not only the Fleet but SAC bases. Air strips are under construction. There are certain facilities already in operation, a General Mess, a post office, a Navy exchange commissary and retail store. With these in operation, the pioneer era for everyone at the joint Spanish-American naval base is drawing to a close. The rugged life typical of a building operation is a thing of the past.

Until the new picture-window General Mess became functional, unmarried enlisted men dined in the base's semi-finished BOQ; civilian and military personnel shopped in a small temporary exchange which used the building now housing the new post office, and everyone shared postal arrangements with a government construction contractor's office.

The General Mess was commissioned when the Marine detachment held the traditional Marine Corps anniversary ball there. The 1000-man dining hall is a Spanish designed building with floor-to-ceiling windows on three sides. It has its own cold storage, meat-handling, and baking arrangements.

25-TON 'TETRAPODS' FOR THE BREAKWATER

Capt. Norman C. Gillette, Commander of the U. S. Naval Activities at Rota, slashed with his sword the red ribbon barring more than 300 eager first day shoppers when the Navy Exchange commissary opened. Other Exchange facilities include a laundry, dry-cleaning plant, tailor shop and cobbler shop, barbering and beauty parlors. The Enlisted Men's Club is ready, and CPO and Officers' clubs will be open sometime this spring.

The City of Rota with a winter population of 14,000 is on the western headland of the Bay of Cadiz. Archaeological discoveries indicate that the Cadiz region was probably the site of western Europe's first organized city. The Phoenicians established a trading community at Cadiz in approximately 1100 B.C.

Bulldozers and power shovels breaking ground inside the confines of the naval base have turned up Phoenician tombs, coins, and pottery, plus relics of later periods. On one beach, bathers discovered what appeared to be teeth from a prehistoric reptile. The Navy has ordered that all "finds" be turned over to Spanish archaeological authorities for their evaluation and retention.

Rota is one of Spain's popular seashore resorts. During the intensely hot summer months, Spaniards come to Rota from big cities like Madrid and Sevilla to get relief on the always breezy Atlantic coast.

Just east of Rota is the world famous sherry country of Jerez. Forty miles along the coast to the north lies Palos, the tiny harbor from which Columbus sailed west to discover the New World in 1492.

The Spanish Navy purchased the tract of land on which the base is being built. It meant the resettlement of some 250 Spanish farm families whose major crops were wine grapes, melons, and tomatoes.

Although the base is not yet complete, the nucleus Navy community of Navy personnel and Marines has been functioning as an advance echelon.

In order to get the base to functioning as quickly as possible, the construction schedules gave priority to fueling, aviation, administrative, supply and housing installations with refinements slated for the future.

The Navy's operations at Rota are under the jurisdiction of the Commander in Chief, U. S. Naval Forces, Eastern Atlantic and Mediterranean, whose headquarters are in London. His representative in Spain is Capt. Henry H. Hale, Commander U. S. Naval Activities, Spain, who is also attached to the Joint United States Military Group (JUSMG) which has headquarters in Madrid. All U. S. military construction in Spain is supervised by the Navy's Bureau of Yards and Docks.

A French designed breakwater system employing more than 10,500 giant concrete "tetrapods," ranging from eight to 25 tons each, is being installed at Rota's artificial naval harbor. This is the first large-scale use of the system.

The tetrapods, which resemble colossal "children's jacks," are deposited in the waters washing the wharves and piers. Their tremendous aggregate weight and throwback tendency offer more tidal restraint then conventional breakwaters.

Rota will be able to house 150 single officers and nearly 1400 single enlisted men. There are provisions for additional barracks in the future. At present there is a total of 162 dependent housing units with more in prospect.

For recreation and personal convenience, the Navy is erecting a chapel, gymnasium, library and clubs. A school for dependent children is in operation. There will also be an extensive athletic area.

One Navy man recently assigned to Rota said after his first day, "What's this, a United Nations?"

He wasn't far wrong.

Besides the prime construction contractor—an American firm—there are engineering contingents from Britain, Germany, and France working on the base, plus over a dozen Spanish building companies. Specialists from all over Europe (this side of the Iron Curtain) have been called in to handle complicated engineering problems.

A number of men attached to the American construction company have worked on U. S. building jobs ranging from the Arctic wastes to the Arabian desert. Two once worked in Russia.

Contracts went to many Spanish firms and one French company, because of the economy in having heavy equipment on hand in Europe. This saved shipping it from the United States.

That the Old and New Worlds have joined forces is evident. It is not unusual to see a string of burros loaded with sand plodding towards a sand-washing stand, while 15-ton dump trucks rumble past in the opposite direction carrying fill for naval base construction.

Again, fuel depot builders found that in mud and sand, oxen were more efficient for hauling steel sections of the underground storage tanks than were man-made vehicles.

Spanish laborers working in the massive supply warehouse were at first frightened by the small but powerful fork-lift cargo trucks, but with almost heroic determination to master the machines, developed perfect handling techniques.

Bustling through the base on a working day, American military personnel, U. S. construction supervisors, thousands of Spanish foremen and builders, and nearly 50 British, French and German engineers, symbolize the Free World in action.

After nearly three years of working together, Spaniards, Americans and other Europeans on the Rota project seem to have learned some highly valuable lessons from one another.

FOUR-THOUSAND FT. TAXIWAY BEING BUILT

BURRO DRIVER UNLOADS SAND AND ROCK

CHILDREN, FRIENDS AT COLUMBUS' CHURCH

BLADES MOUNTED ON SNOWPLOW CHURN UP HARD PACKED SNOW ALONG RUNWAY EDGES

SNOW IS NO OBSTACLE AT NAS

In the 16 winters since its commissioning, NAS Quonset Point, R. I., has been closed to flight operations only once. That was during the record snowfall in March 1956.

Quonset has a system that moves snow off runways almost as fast as it falls. Early in November each year, military personnel from station and fleet units are instructed in snow removal procedures by experienced civilian drivers of the station public works department. A snow removal organization of about 80 men is formed. Equipment consists of 13 truck-mounted plows, four rotary plows, five roto-wing plows and six graders.

When snow is likely, the Aerology Officer warns the Snow Removal Officer, so that removal teams can be mobilized. When approximately two inches of snow have fallen, equipment and personnel are sent to the main runway to open operations. Clearing of the main runway and servicing taxiway is followed by the clearing of the other three runways, taxiways, and parking aprons.

Width of runways—one Quonset runway is 500 feet wide—makes snow removal very different from that for street or highway plowing. Runways are plowed from the center line to each edge, with plows operating in echelons of five or six to obtain a broad cut. This builds up windrows along the edges of the runways and in front of the runway lights, so rotary plows blow the windrows over the lights. Where wind conditions would carry the snow back onto the runway, the windrow snow is loaded into dump trucks and taken to a disposal area clear of the field.

At the same time snow removal operations begin on the air field, plowing of firelanes and streets starts throughout the station.

The individual most responsible for Quonset's excellent record in beating the snow is Mr. Charles Piantadosi, foreman mechanic of the Public Works Department, Transportation Division. He has been employed at NAS Quonset Point since its commissioning in 1941.

Quonset's expert on snow removal points out that no two snow storms are alike, "The key to Quonset's success is ready and continuous plowing. We start as soon as there's enough snow to make it worthwhile to plow, and we keep plowing all through the storm. By the time it stops snowing nearly all paved surfaces are cleared except for windrows. This is the only way to lick the snow before it licks you."

Statistics give some idea of the magnitude of these operations: Quonset has 767,000 square yards of runways, 101,000 square yards of taxiways, 303,000 square yards of parking aprons and 27 miles of streets. Even two inches of snow on these areas total 87,000 cubic yards weighing approximately 8200 tons.

As the major naval air station in New England, Quonset must be ready for any emergency. The snow removal organization makes this important contribution to Quonset's readiness.

Grumman Gets Contracts

$86,000,000 Program Involved

Production contracts for F9F-8T *Cougar* fighter trainers costing about $40,000,000 and WF-2 *Tracer* early warning aircraft for over $46,000,000, have been awarded the Grumman Aircraft Engineering Corporation.

The F9F-8T *Cougar* contract calls for production and delivery in 1959. It is a two-place transonic fighter trainer now in service with the Navy.

Production of the WF-2 *Tracer* will continue in 1960. Announced in March as being under development, the *Tracer* is Grumman's latest contribution to the Navy's airborne early warning line. It houses in its mushroom-like radome electronic detection equipment to be produced by the Hazeltine Electronic Corporation, Long Island.

The WF-2, carrier-based, all-weather fighter, also will control friendly task force defense fighters in the interception of enemy air attacks.

MIRAMAR BLUEJACKETS, *left to right, O. V. Llovin, R. D. Bockovich, and Frank Vasquez dig into their trays at a Chuck Wagon dinner in station mess hall. Fiddler "Cactus" Soldi spices their appetites with western tunes.*

Gallery Lands on Ranger
Comes Aboard to View Exercises

Flying from the ship in an A3D jet bomber, RAdm. Daniel V. Gallery, Commander of the Tenth Naval District and Commander, Caribbean Sea Frontier, became the first Flag Officer ever to land on the USS *Ranger*, CVA-61, and the first admiral to fly from the carrier in a *Skywarrior*, the largest carrier aircraft ever built.

RAdm. Gallery came aboard the *Ranger* during its shakedown cruise at Guantanamo Bay. He made the flight piloted by LCdr. R. E. Fowler and acting crewman, CPO R. H. Kennedy, both of VAH-9.

The Admiral, a Naval Aviator for 30 years, has over 6000 hours flying time in all types of Naval aircraft, including single seat jets. He was aboard the *Ranger* viewing training exercises and also flight operations.

NAS GLENVIEW *has come through for the kids! Backed by station personnel, a clubroom in the BOQ has been opened and furnished for dependents of military personnel. Here teen-agers meet with Capt. L. P. Carver, USN.*

VFP-61, 62 Go Supersonic
Photo-Crusaders on Both Coasts

The Navy's Light Photographic Squadrons officially entered the supersonic age with the acquisition of the 1000-mile-an-hour-plus F8U-1P.

VFP-62 at NAS JACKSONVILLE was first to get the photo-configured version of the *Crusader*. NAS MIRAMAR'S VFP-61 followed only two weeks later.

Pilots and ground personnel of both squadrons underwent intensive training in operating procedures and maintenance. Representatives of Chance-Vought and photographic equipment companies helped with the orientation.

Addition of the high-performance plane is expected to increase greatly the squadrons' operating capabilities.

Midway Out of Overhaul
At Alameda, Joins Pacific Fleet

USS *Midway* has reported to the Pacific Fleet for duty after a two-year overhaul at Bremerton. Extensive interior improvements plus a new angled deck, hurricane bow and superstructure changes have been made.

More complete missile launching facilities were added in the $50-million overhaul. NAS ALAMEDA has been designated as USS *Midway*'s home port.

FIRST OF *eight new fireproof barracks at NAS Barber's Point which were recently completed and are now fully occupied by Navy personnel.*

5000 Troops Attack Luzon
SEATO Exercise Largest Since War

Combined U. S. Marine and Philippine forces took part in a 5000-troop amphibious assault in Dingalan Bay, Luzon, during SEATO Exercise Phib-Link. It was the greatest display of military strength in the Philippines since WW II. *Fury* jets of the First MAW supported Third Division troops.

FIRST SCIENTIFIC *leader of Navy-built South Pole IGY Station, Dr. Paul A. Siple, right, receives Army's Exceptional Civilian Service Award and congratulations from Army Secretary W. M. Brucker in Pentagon ceremony.*

New USMC Air Activities
SecNav Designates Command Areas

Commanding Generals of the Marine Corps Air Stations Cherry Point, North Carolina, and El Toro, California, have new titles as a result of an order issued by the Secretary of the Navy.

BGen. Edward C. Dyer is now Commanding General, Marine Corps Air Bases, Eastern Area, with additional duty as CG, MCAS CHERRY POINT. BGen. Frank H. Wirsig holds the same position for the Western Area.

The areas include that portion of the continental United States encompassed by the geographical boundaries of the corresponding Sea Frontiers.

These commanders exercise military control over all aviation shore activities providing services to air units of the Fleet Marine Forces, and are responsible for services and facilities.

FIRST APPEARANCE *of A4D Skyhawks is made in the Far East as these three delta-wing jets arrive to conduct operations at NAS Atsugi, Japan. Based with VA-93 aboard USS Ticonderoga, the light attack bombers are primarily designed as special weapons aircraft. They have a secondary mission of close air support. The Skyhawk is capable of speeds in excess of 650 mph. VA-93 is commanded by Cdr. P. E. Padget. The squadron's nickname is the "Blue Blazers."*

RADM. CALDWELL PRESENTS SAFETY PLAQUE TO CDR. EASTERLING

NARTU MEMPHIS CO, CAPT. E. M. SNOWDEN, WELCOMES VP-793 CO

NOTES ON NAVAL AIR RESERVE

NAS Olathe Wins Safety Award

Patrol Squadron 881, commanded by Cdr. E. R. Easterling, received the Chief of Naval Operations Safety Award for fiscal year 1957. RAdm. Henry Caldwell, Chief of Naval Air Reserve Training presented the plaque at impressive ceremonies at NAS OLATHE.

The permanent award is part of the Naval Aviation Safety and Accident Prevention Program. It gives recognition to operating, training and reserve units for outstanding safety records and commendable efforts in preventing aircraft accidents. Such endeavors contribute to economy, morale, and combat readiness of Naval Aviation. Notations are made in the service records of all personnel attached to units that receive the award who have substantially furthered the cause.

Naval Air Reserve Squadrons compete by type. Hours flown and pilots allowed are considered, as well as safety records. VP-881 operated an entire year without a single accident.

NOLAN, STADIUM DONOR, CAPT. DUBORG

VR-693 Has Busy African Tour

The fund-raising campaign for the construction of the Navy-Marine Corps Memorial Stadium at Annapolis has had far-reaching effects.

Transport Squadron 693 of NAS COLUMBUS deployed for two-weeks training duty at Port Lyautey. Accompanying the squadron was Mr. John T. Nolan who is heading the stadium drive in Cincinnati. The combined efforts of Mr. Nolan, the Columbus Reservists and the personnel attached to Port Lyautey brought excellent results. One of the leading Moroccan officials made a contribution to Capt. C. H. Duborg, Commander, Naval Activities.

RADM. MORNU, CAPT HARMON REMINISCE

VR-693 participated in other activities while in Africa. Before leaving the States they learned of the dire need of braille writing equipment for blind children in Rabat and Casablanca. They purchased the material and delivered it to the schools.

The squadron was successful in carrying out the mission of moving supplies for the Sixth Fleet. They carried a total of about 72,000 ton/miles in support of fleet activities.

French Admiral Visits Anacostia

RAdm. Louis Mornu, Naval Attache of the French Embassy, was guest inspector of military personnel at the Naval Air Reserve Training Unit, Anacostia.

A French Naval pilot since 1928, RAdm. Mornu was welcomed by Capt. L. R. Harmon, commanding officer of the unit.

Capt. Harmon in introducing the Admiral to his men recalled the days during the Korean conflict when he served under the Admiral's command as Operations Officer of the Mobile Training Unit responsible for indoctrinating the French crew of the former USS *Belleau Wood*. This aircraft carrier was renamed *Bois Belleau* when it was placed under the French flag.

RAdm. Mornu, in a brief address to the station personnel, stressed the long friendship between the two countries. It began in 1778 when the French fleet, under Adm. Picquet, rendered a nine-

gun salute to the USS *Ranger*, commanded by John Paul Jones. This was one of the first times the Colonies were recognized by a foreign power.

VP-793 Placed in Commission

As a result of the deactivation of NAS ST. LOUIS, a new Patrol Squadron was placed in commission at NARTU MEMPHIS.

Designated VP-793, it comprises approximately 100 officers and enlisted men who formerly trained with VP-921 and 922 at St. Louis. The pilots, aircrewmen, ground officers and maintenance personnel will fly and maintain the P2V *Neptune*. The multi-engine patrol bombers are being assigned as a replacement for the P4Y-2 *Privateer*.

Cdr. Dan H. Frissell commands the squadron. LCdr. Conrad J. Leonard serves as Executive Officer. Memphis now has a total of ten Naval and two Marine Reserve Aviation Squadrons.

Work Progressing at Atlanta

Construction was begun six months ago on the new NAS ATLANTA site at Dobbins Air Force Base, Marietta, Georgia.

Excellent progress has been made to date. The "shells" of the supply, public works, boiler house and inflammable storage buildings are nearing completion. Eighty percent of the steel phase was completed with the erection of the frames for both the wide and narrow lean-to's of the hangar. All work should be finished by December.

BuShips Praises Inventor

James L. Lemm, ET3, received a letter of commendation from the Chief, Bureau of Ships, and the Commanding Officer of NAS OAKLAND, for devising a remote control on-off switching system to aid flight.

His device is located in the Communications Office in the hangar where it can switch on the power in the Transmitting Building half a mile away. It eliminates the need to man the transmitter site on a 24-hour basis.

Lemm is a ham radio operator and holds a private pilot's license. He is ship's company at NAS OAKLAND.

LEMM ADJUSTS MOBILE UNITS TRANSMITTER

Sisters Tour NAS Grosse Ile

A group of School Sisters of Notre Dame from four schools in the area toured NAS GROSSE ILE as guests of the CO, Capt. C. A. Keller.

The Sisters watched a simulated helicopter rescue demonstration, observed the operations of a parachute loft and the workings of link training equipment. The tour was concluded with a description of Navy instructor training methods by Chief H. Davis. LCdr. Owen, Chiefs Ardo, Hubbard and Fosty acted as group guides.

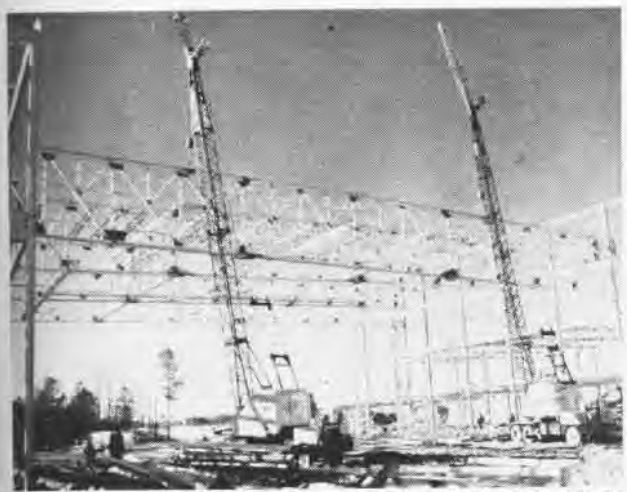
LCDR. MEYERS USES NEW PLOTTING BOARD

Plotting Board Patent Awarded

LCdr. Mae E. Meyers, attached to Wing Staff 70, was granted a patent from the U. S. Patent Office to cover her rights to an improved plotting board. The board makes aerial navigation easier and more readily computed than ever before.

The time-saving feature of the device is an adjustable marker for reading longitude in lieu of the old method of drawing a base line across the plotting board manually. In addition, it has the compactness necessary to fit on the knee in the conventional manner, has space for a log, and provides for a geographical plot.

Miss Meyers became interested in improving the plotting board soon after becoming a Navy instructor in navigation in 1944. About four years ago, she gave W. C. Driver, AM2, plans for a model. The model he produced was photographed and copied, along with other essential information, and sent to the Patent Office in Washington, D. C. On the basis of this data, the patent was granted.



TWO CRANES MAKE LIGHT WORK OF PLACING HUGE STEEL BEAMS

SCHOOL SISTERS OF NOTRE DAME GOT GOOD LOOK AT COPTER

MASS-2 CALLS THE STRIKES

TACTICAL AIR CONTROL PARTY PINPOINTS GROUND UNIT AND VECTORS IN AIR SUPPORT

I'VE GOT it! the flight leader shouts into his microphone as he sees the smoke grenade marker. His AD-6 *Skyraiders* peel off from the formation to blast an enemy strong point that is holding up the advance of a Marine infantry company.

The incident is a drill. It points up the effectiveness of the Marine Corps close air-ground support team and the mission of Marine Air Support Squadron Two in particular. MASS-2 is stationed at Iwakuni, Japan.

Behind the mock action is a bewildering maze of electronic coordination between infantry radiomen and the planes which support ground troops.

MASS-2 uses ground electronics and communications equipment to control the airplanes which fly ground support. The squadron employs a direct air support center (DASC) and two air support radar teams.

Once the tactical air control parties land ashore and set up their equipment, the DASC is given control of aircraft supporting ground units. The DASC requests aircraft from the tactical air control center for such missions as close air support, "night hecklers," night support and air reconnaissance which ground operations may require.

Equipment is kept as mobile as possible to permit rapid movement for continuous air support when the command post of the associated ground unit is displaced in action.

The two air support radar teams have complete aircraft control for foul weather and night horizontal bombing attacks, as well as resupply drops to Fleet Marine units.

In the past year, MASS-2 has completed seven maneuvers: Okinawa on three occasions; Mount Fuji, Bangkok, Iwo Jima and the Philippines once each.

MASS-2 usually travels to its destination aboard an LST but is always ready to pack its equipment for air transport as the situation demands.

MASS-2 TEAM PLOTS FOUL WEATHER STRIKE

AP Reports as Test Pilot

Ray Qualified as a Pilot in 1937

James Ray, AO1 (AP), one of the few remaining enlisted pilots, has reported for duty as a test pilot at NAS JACKSONVILLE.

Ray received his commercial license in 1937 and began his Navy flying career Sept. 1, 1939. He was at Pearl Harbor December 7, 1941.

Ray reported to O&R Jacksonville from Guam. Before that, he spent four years at Pensacola where he was commended for making 1000-accident-free test flights in a single tour.

'Once Aboard the Leyte'

Chief Serves for 13 Captains

"I have seen them come, and I have seen them go," says Leslie R. Rizer, a machinist mate on the USS *Leyte*.

Chief Rizer has spent 11 years on the *Leyte*. He said that he thought there had been 13 captains since he came aboard.

He started his Navy career during WW II. After nine months of civilian life in 1946, he reenlisted and reported aboard the *Leyte* 14 January 1947 as an FN. He made Chief in February 1953.

Salutes for Safe Flying

Corry Field Pilots Commended

Capt. William R. Staggs, CO of NAAS CORRY FIELD, Pensacola, Fla., presented three Corry aviators with commendations from the Chief of Naval Air Basic Training. The pilots had flown 1200 accident-free hours as flight instructors in the Basic Training Command.

The pilots who received commendation were LCdr. J. P. Kemp, Ltjg. Frank Hall, and LCdr. I. E. Eagerton.

ADVANCED TRAINING *Unit 206 at Sherman Field is using the sweptwing, supersonic Cougar in the syllabus. Cdr. G. A. Snyder, Maintenance Officer, hands helmet to Cdr. I. L. Butts, O-in-C, for first flight in F9F-8T.*

NAVY HAS SPACE SUIT READY

WITH AIR TEMPERATURE AT —40° F., McGOWAN IS COMFORTABLE

McGOWAN DEMONSTRATES ABILITY TO FLOAT IN A SPACE SUIT

By Ltjg. R. C. Haavind

THE STYLE of things to come is evident at the Air Crew Equipment Laboratory, Naval Base, Philadelphia, Pa. Long before sputnik, this lab was working on space equipment. After nine years, scientists have come up with the right garb for a space voyager. Wearing this suit, he can leave a rocket ship and explore the moon's surface.

The space suit contains a sealed-in atmosphere which could sustain a man in a complete vacuum for hours. The Navy arrived at this point during a project to provide an emergency suit for pilots at altitudes of 45,000 to 50,000 feet. Step by step, the researchers added improvements until now they have a garment that will enable a man to work outside the earth's atmosphere.

The present suit provides a supply of pure oxygen at a pressure equivalent to that at 35,000 feet. The man in the suit gets as much oxygen as he would breathing air 1900 feet above sea level.

In one test, civilian technician Richard J. McGowan wearing the suit entered a tank of freezing brine with a —40 F. air temperature over him. He remained in the tank 45 minutes without discomfort. To combat heat and cold that might be encountered, the ventilated garment is essentially long johns with tubes for circulating air over his body.

In an altitude test of the suit, McGowan entered a chamber which was depressurized to simulate an altitude of 80,000 feet. After eight hours, observers outside the chamber were tired, so they asked McGowan if he wanted to continue the test.

"You boys can leave," McGowan said, "just send in a mirror and I'll observe myself."

The observers stayed and the test continued for three more hours.

In one unrehearsed trial, the space suit saved the life of a Navy pilot. While wearing the suit on a routine experimental, high-altitude flight for Navy squadron VX-3 out of NAS ATLANTIC CITY, the pilot experienced an engine flame-out resulting in an almost immediate loss of cabin pressure at 54,000 feet. The suit automatically inflated and enabled the pilot to bring his aircraft down into a safe altitude.

LTJG. L. G. HANSEN WEARS A SPACE SUIT

When Capt. Charles F. Gell, MC, USN, Director of ACEL, approaches the subject of travel in space using the Navy's space suit, he is quick to point out the serious problems which must be solved to make the first space voyage possible. Most important of these is the construction of a protective rocket ship which will not burn up as it re-enters the earth's atmosphere. Another is heavy exposure to cosmic radiation.

The psychological problems involved in travelling in the confined areas of a space ship for long periods are being studied. Men have remained in submarines for a period of over 30 days without ill effects. Dr. Gell believes that with proper selection of people to travel in space, this problem can be licked.

If the voyager wants to make an inspection of his rocket ship while in space, he can leave the craft through a pressure lock. Then he would propel himself around the ship with oxygen jets working off the suit's supply. The space man would not fall behind the speeding ship, because there would be no atmosphere to slow him down.

To prolong the time a man can stay in the space suit, Navy researchers are hoping eventually to develop means for feeding and discharging body wastes. With these improvements, a man could live in the suit for days.

Confidence in the future of space travel is reflected in Dick McGowan's hope—that when the suit is first used outside of the earth's atmosphere, he will be the man who is wearing it.

IN FOREIGN SKIES

ATTACK MISSILES *for the Royal Swedish Air Force are shown mounted on the Saab-32 Lansen all-weather attack aircraft. These Swedish-developed air-to-surface guided missiles, designated type 304, are now undergoing intensive trials before their introduction into actual SAF service.*

AT A SOVIET *airport, all hands get the mail off. Prior to the introduction of the new Camel (Tu-104), twin-jet transport, the Soviets pioneered domestic air routes with converted Beagle twin-jet bombers (Il-28's). The Beagles were used to carry high priority light freight and mail.*

SOMEWHERE *in Communist China, the Russian-designed Fagots shown here are reported under construction. This jet fighter has been in operational service in ChiCom air regiments since the Korean Conflict. It was at that time that the Soviets made initial delivery of the Fagot.*

THE HOUND *helicopter is widely used by the USSR and her satellite air forces. It has a four-blade motor and can carry a lightweight jeep which enters the copter through clam-shell doors in the aft end of the fuselage.*

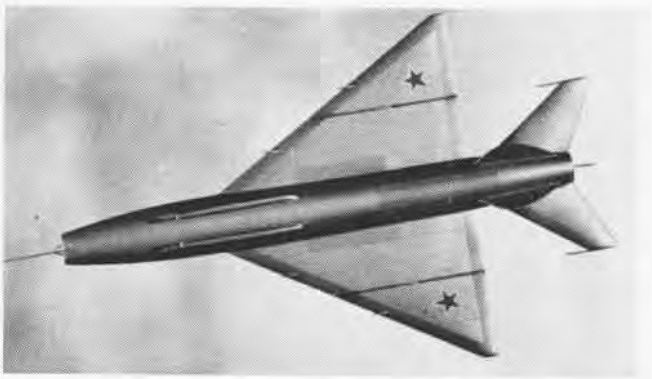
★

Japanese VIP's Visit Ticonderoga

A group of 25 officers of the Japanese Ground Self-Defense Force, led by LGen. Toshio Nakano, Commanding General, First Division, toured U. S. Fleet activities, Yokosuka, Japan. Highlight of that occasion was the visit aboard the *Ticonderoga*.

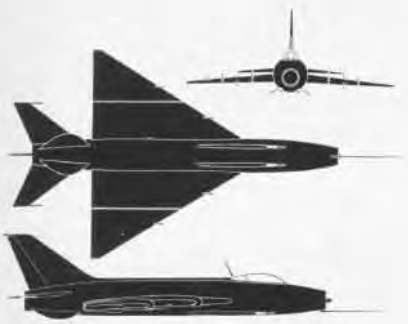
In the picture shown below, LGen. Nakano listens as Tsuyoshi Matsumoto (center), Director of Civil Relations at U. S. Fleet Activities, Yokosuka, and Capt. Irwin Chase, Jr., Commanding Officer of the *Ticonderoga*, explain carrier's role in the Seventh Fleet.

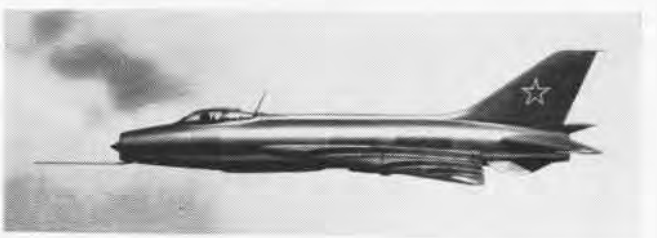
NAKANO, MATSUMOTO AND C.O. OF BIG T

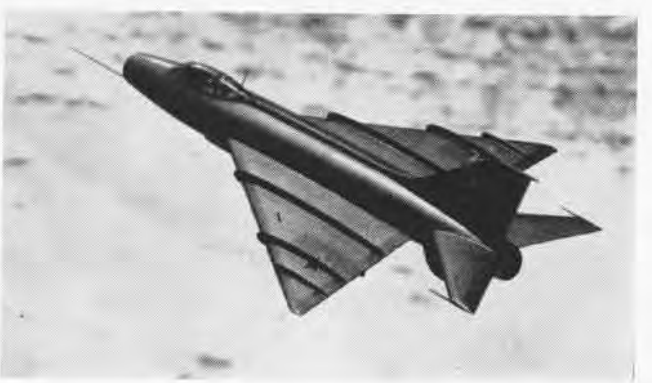


FISHBED B

This new Soviet airplane is a supersonic, delta-wing, single-seat interceptor. Chief difference from Fishbed A is that the wings of B are clipped. Fishbed B first appeared in the 1956 Tushina Air Show. It has a swept horizontal and vertical tail. Note that a fixed compression cone is centered in the air intake.

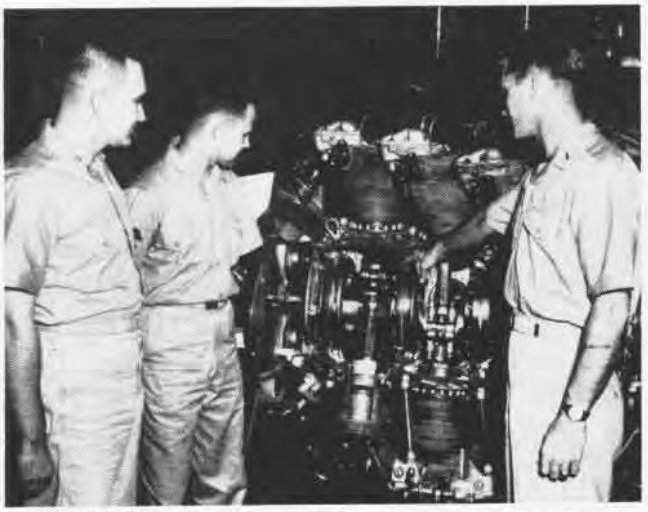






STREAMLINED PILOT TRAINING

THE THRILL *that comes "once in a life time" is a fair description of of the NavCad's reaction to his first solo in the T-34 primary trainer.*



AN INSTRUCTOR *points out some of the intricacies of an aircraft engine to the students attending the United States Naval School of Pre-Flight.*

A MILESTONE *in the student's naval training comes when his instructor briefs the student just before he takes his first hop in a T-28.*

FLIGHT GUNNERY *practice is an essential and important part of the NavCad's training. He must learn to fly high and shoot straight.*

AT WHITING FIELD, *the NavCad practices instrument, night and formation flying. Cross country flights sharpen navigation training.*

STREAMLINED is the word for it. Not only does the student aviator learn to fly, he becomes skilled in one particular type of flying. Naval Cadets are trained in one of four fields—jet fighter, multi-engine planes, lighter-than-air ships or helicopters. Pilots "flow" from separate "pipelines" out of the Naval Air Training Command to the Fleet.

Since the need for jet fighter pilots is still the Navy's greatest need, let's follow a NavCad through the jet training program of the Naval Air Training Command. At NAS PENSACOLA, young men between the ages of 18 and 27 who have completed at least two years of college and who meet a high standard physically and mentally, take their training.

For their first 16 weeks, the NavCads are "grounded" at the Pre-Flight School, where instruction covers three areas: academic, athletic and military. The academic division includes 312 hours of classroom instruction in such subjects as flight physiology, aerial navigation and aircraft engineering.

After Pre-Flight, the cadets move over to NAAS SAUFLEY FIELD for eight weeks where they use the Navy's primary trainer, the Beech T-34 *Mentor*. After 13 flights with an instructor peering over his shoulder, the student is ready for his solo flight. Fifteen more flights in the "yellow birds" teaches him how to perform loops, rolls and other maneuvers.

Before leaving Saufley, the student chooses one of two pipelines in the Basic Training Command: the fighter/attack pipeline if he intends to be a jet pilot; the antisub/patrol pipeline, if he elects multi-engine aircraft.

Fledgling jet pilots, about 56% of the total, will go to NAAS WHITING FIELD for 19 weeks training in the North American T-28. From the T-34 to the T-28 is a jump from a 3000-lb., 225-hp. plane to an 8000-lb., 1425-hp. craft which, in terms of performance, tops WW II fighters.

In the T-28's, the student learns instrument flight, night and day, and formation tactics. He takes cross-country flights to practice navigation.

In all, he spends 19 weeks at Whiting, then moves on to Barin Field, another auxiliary of Pensacola, where he does his FCLP preparatory to landing aboard the USS *Antietam*.

During his five weeks at Barin Field, the student continues to fly the T-28, both for his carrier qualifications and for gunnery practice. (All Naval pilots must be carrier qualified.) Then he is ready to go to advanced training and begin flying jets.

He goes on to the Naval Air Advanced Training Command at Chase Field, near Corpus Christi, Texas, where he covers the "140 Hour Jet Training Syllabus." He spends 21 weeks there before he is made available for assignment.

His first jet flight will be in a sleek Lockheed TV-2 or T2V-1 trainer, capable of speeds up to 600 mph. Thirty flights in this craft, another week of indoctrination and he goes "sweptwing" and flies the F9F-8T. After 51 flights in the F9F, he has completed training and can fly with the Fleet.

YOUNG AND EXPERT, *the young NavCad takes his carrier qualification in stride, and the months of thorough training entitle him to wings.*

INSTRUCTION IS *the heart of the training program. Here the NavCad and his instructor come off the flight line after a successful hop.*

THE LONG-AWAITED *moment arrives when the Navy Wings of Gold are put on, certifying that he is now a fully-qualified Naval Aviator.*

PART OF THE ANTENNA FIELD AT NAAS BROWN FIELD SATELLITE TRACKING SITE. NOTE THE CAMERA HOUSE IN CENTER OF FIELD

AD-5N FLIES SATELLITE MISSION

LONG BEFORE Russia's Sputnik and Muttnik caused eyeballs to train skyward a similar moving light was flashing its way across the night sky of Southern California.

The light came from an AD-5N *Skyraider* based at NAS MIRAMAR. The Able Dog was playing the simulated role of earth satellite. Part of Project Vanguard, the *Skyraider* from FASRon-12 flew night missions over the Brown Field Naval Auxiliary Air Station's satellite tracking site.

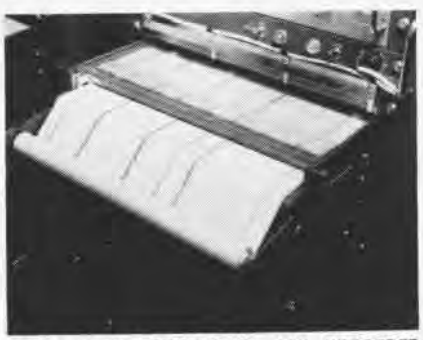
Its mission was to calibrate the intricate system of antennas and radio receivers to be used for the actual tracking of a U. S. satellite.

Brown Field tracking station is 18 miles southeast of San Diego. It is under the direction of the Naval Electronics Lab at San Diego and is one of nine tracking stations in the western hemisphere set up to track and collect scientific data from the Vanguard satellite.

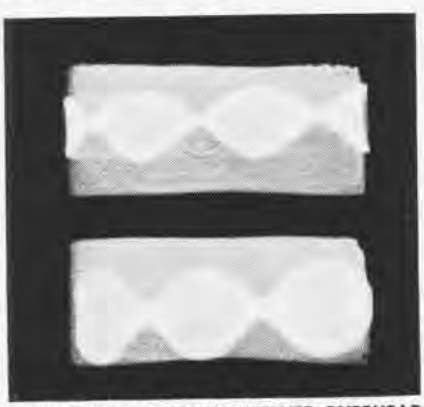
Before the equipment could be used with any degree of accuracy, the system had to be carefully calibrated and records sent to the central office in Washington. Comparisons were made there with the findings of other stations, resulting in accurate setting of all receivers in the Vanguard tracking network.

That is where the AD came into the picture. Equipped with a small flashing light under its fuselage and a small Minitrack transmitter, the *Skyraider* flew over the tracking site. The plane followed a designated flight pattern, passing over the field flashing its white light and transmitting its radio signals.

'SATELLITE' CREW RELAXES UNDER PLANE



SATELLITE TRANSMISSIONS ARE RECORDED



OSCILLOSCOPES SHOW SATELLITE OVERHEAD

On the ground a Schmidt astrograph camera recorded the light as the plane dotted its way across the sky. Antennas, checking the camera, recorded the exact location of the airplane. The astrograph picture was compared with data collected by the radio receivers to check errors in the equipment so that necessary corrections could be made.

The flight patterns of the *Skyraider* followed a west to east course and covered 40 degrees of arc north and south of the tracking site. On occasion the AD-crew found itself over the border and into Mexico.

Pilots of the satellite-mission *Skyraider* were Ens. Paul Barrish and Ltjg. William Lee. Jerry Volster, AD3, flew as crewman. Occasionally the pilot pushed the AD to 25,000 feet altitude, only a fraction of the intended height of the actual Vanguard satellite. The plane's speed of 140 knots allowed maximum exposures by the camera and accurate radio fixes as the plane moved over the station.

When Sputnik began circling the globe in October, the Brown Field minitrack station began trying to locate the tiny satellite on its 18,000 mph flight. Tracking the AD took a back seat to the 184-pound Sputnik.

Since the Russian satellite was transmitting signals on 40 megacycles, the equipment set up for tracking Vanguard on 108 mc was inadequate for drawing a bead on Sputnik.

Hurried adjustments were made, allowing the Brown Field unit to receive Sputnik's signal and help give the U. S. scientists valuable information on the satellite's orbit and height.

New Contract to Kaman

Navy Puts in $13,000,000 Order

The U. S. Navy has awarded the Kaman Aircraft Corporation a $13,000,000 contract for a prototype quantity of HU2K-1 helicopters. Winner of a BuAer design competition, the HU2K-1's will be powered by a GE gas turbine.

The new helicopter, which is equipped with a single rotor, is a successor to the HOK-1 and HUK-1, produced for the Navy and Marines.

Step Taken Toward CVAN

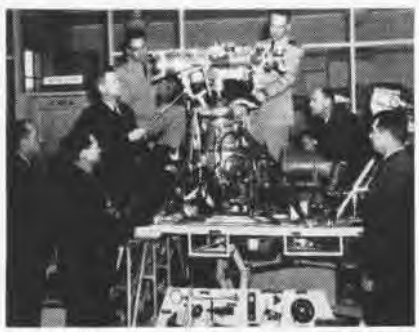
Westinghouse Awarded Contract

A contract for the design and furnishing of reactor compartment components for the nuclear-powered aircraft carrier (CVAN), has been awarded to Westinghouse Electric Corporation, Pittsburgh, Pennsylvania. The contract price is $46,050,000.

The contract covers such items of equipment as instrumentation, controls, valves, and pumps. Westinghouse built the reactor for the USS *Nautilus* as well as reactors for many of the other nuclear-powered submarines under construction by the Navy.

Construction of the carrier is included in the Navy's fiscal 1958 shipbuilding program. It has been assigned to the Newport News Shipbuilding and Dry Dock Co., Newport News, Va.

AVGAS ANALYZER, *Marine S/Sgt. Frank Nelson, is responsible for the quality of fuel used by 1st Marine Aircraft Wing units at MCAF Iwakuni, Japan. He checks octane, oil flow, wax content and other specifications.*



NEW TYPE, *new course at Ellyson Field! These students were the first to complete the ground training course using the HO4S ground trainer. The seven-hour course consists of a series of lectures and classroom sessions.*

Missile Site in Wyoming

Base to Cost Over $65,000,000

The Defense Department has announced that the construction of a missile site at Francis E. Warren AF Base, Wyoming, is scheduled to start during the middle of this year. Construction of facilities required to support the missile program at that air base is estimated to cost in excess of $65,000,000.

Air Training Command technical schools now located at the base will be phased out as construction gets under way.

The command jurisdiction of the Francis E. Warren Air Force Base will be transferred from the Air Training Command to the Air Research and Development Command. Present plans call for 4000 to 5000 personnel to operate the new missile facility.

VX-4 Earns Safety Award

ComNavAirPac Praises Squadron

Air Development Squadron Four, under Capt. Vincent P. de Poix, has been awarded the Aviation Safety Certificate for the third quarter of 1957. During the period covered by the award VX-4 pilots flew without an accident.

VAdm. Alfred M. Pride, ComNav AirPac, congratulated all squadron personnel for sound maintenance practices, effective training procedures and a high degree of air discipline.

VACUUM TEST CHAMBER *built by Convair at San Diego under $1 million Air Force contract can house fuselage of F-106A Delta Dart interceptor for high-speed heat and high-altitude pressure tests. Half of test chamber is mounted on wheels so it may be rolled away from fixed companion section to load aircraft fuselage. Cutaway view at right shows 2500-watt infra-red tubular quartz lamps that line the interior of the test stand and simulate aerodynamic heating. Altitudes of 100,000 feet and heating speeds up to Mach 3 can be simulated.*

COD PROVIDES FLEET SERVICE

PASSENGERS AND CARGO DELIVERED, A TF TRADER TAKES OFF FROM USS FDR IN MED

A DESTROYER sailor with the Sixth Fleet in the Mediterranean is a long way from home. Yet a letter from his wife temporarily erases the miles. As he reads the letter he is "back home." COD brings him that letter.

A Sixth Fleet cruiser's medical officer decides an immediate operation is necessary for one of the ship's Chief Petty Officers. The doctor deems the operation be performed at the U. S. Army hospital in Landstuhl, Germany. COD flies the patient there.

A million-dollar jet aboard one of the Sixth Fleet's aircraft carriers needs a vital part to keep it flying. From a shore-based supply center the essential equipment is flown to the carrier, courtesy of COD.

Missions of morale, mercy and maintenance are some of the functions of COD. Carrier Onboard Delivery is part of the job done by VR-24's Detachment stationed at Naples, Italy. The parent squadron is based at Lyautey.

COD uses the transport version of the Grumman TF *Trader* to complete its missions. The TF is sister to the S2F sub-killer. It is a twin-engine, dual-pilot aircraft capable of carrying eight passengers or almost two tons of cargo. It can land on any aircraft carrier in the Navy.

The detachment began operations in August, 1951. The following February it started using the TBM *Turkey* to make deliveries to the U. S. Fleet in the Mediterranean. The *Turkey* did a commendable job but its shortcomings in cargo space, lack of instrumentation, poor facilities for passenger comfort, were soon recognized. It was replaced by the TF which was designed specifically for COD operations. The TF took over in 1956.

Operating on a day and night 24-hour schedule, the primary mission of the VR-24 detachment is tactical support of the Sixth Fleet. When the Fleet is at sea, COD services the aircraft carriers every day.

Subsequent delivery of personnel, mail and cargo to other units of the fleet is made from the carriers via helicopter.

Also in the line of duty is the transportation of key military and civilian personnel to the ships at sea. COD has flown numerous Senators and Congressmen, the Chief of Naval Operations, the Prime Minister of Turkey, the Shah of Iran, the Prince of Morocco, and many other dignitaries to the various carriers.

News correspondents from all over the world have been VR-24 passengers. A recent press flight lifted Mr. Drew Pearson to a Mediterranean carrier.

A remarkable feature of the VR-24 COD unit is its outstanding record of flying safety. Never, in its entire existence, has the detachment had a passenger fatality.

VR-24 is commanded by Capt. R. C. Knowles. The squadron has recently been awarded the CNO Safety Award.

Ion Gun Speeds Research

Permits Study of Fuel Molecules

A "Time-of-Flight Mass Spectrometer," a new tool to produce better rocket fuels, has been developed by the aircraft industry with the manufacture of an electronic device that can instantaneously complete an analysis of the chemistry of an explosion.

The instrument gives aircraft research engineers a means of analyzing the many intermediate molecules produced in an instantaneous chemical reaction such as the explosion of rocket fuels in a combustion chamber.

Heart of the instrument is an "ion gun." The gun is a metal vacuum tube approximately four feet long. In operation, electrically charged molecules of the elements being analyzed are pulsed like radar signals from one end of the tube to the other. Their time of flight is measured electronically and appears as a certain wave pattern on a picture tube.

The new instrument can complete a chemical analysis in one ten-thousandth of a second.

The combination of fuel in almost any type of power plant—including nuclear reactors, jets, diesels and piston engines for aircraft and automobiles—causes corrosive materials to be formed and deposited. But many of the reactions that produce these harmful effects have not been identified.

With the new spectrometer, science will be able to identify and study the intermediate molecules, some of which are created and almost consumed in the combustion process, that foul up and eventually destroy an engine.

New Marine Reserve VTU

First Guided Missile Unit Set Up

To keep abreast of the latest developments in the guided missile field, the Marine Corps Reserve will activate its first Volunteer Training Unit, Specialist, Guided Missile, in Washington, D. C.

MGen. Alan Shapley, Director of the Marine Corps Reserve, has authorized the Director of the 5th Marine Corps Reserve and Recruitment District in Arlington, Virginia, to set up the unit at once.

VTU's are composed of both officer and enlisted reservists who hold organized, non-drill pay, meetings.

Other Guided Missile VTU's will be activated throughout the country.

'Honest John' Unit Formed

Inaugurates Mission at Lejeune

Honest John rocket launchers will be the major armament of the 2nd Heavy Rocket Battery which has been activated at Camp Lejeune as a unit of Fleet Marine Force, Atlantic.

The battery, made up of two platoons, each with two of the launchers, will fire the surface-to-surface rockets in tactical support of infantry.

The three-ton rockets are launched from a 50-foot slideway mounted on the rear body of a five-ton truck. The rockets are capable of carrying either nuclear or conventional warheads.

A trained crew can set up the battery and fire it in 15 minutes.

Navy GCA Helps Air Force

Crippled C-124 Lands at McMurdo

In the midst of an Antarctic blizzard, a crippled U. S. Air Force *Globemaster* made a blind landing at McMurdo Sound. It landed safely on the third try.

The 70-ton plane had been in the air 13 hours on a routine air drop mission when engine trouble developed. The pilot, Capt. James W. Thomas, was forced to return to base. An attempt was made to land at Hallett Station, but heavy icing and a raging storm made this impossible. The C-124 turned back to McMurdo.

Navy GCA assisted in the landing, made even more difficult by 50-mile-an-hour winds. Lt. J. W. McNeil talked the plane down and received the special thanks of pilot and crew.

'SMOKE GETS IN YOUR EYES'

SKYRAIDER OF VA-16 LAYS SMOKE SCREEN DURING AMPHIBIOUS OPS OFF VIRGINIA CAPES

IF YOU PARTICIPATED in the South Pacific campaigns of World War II you would probably associate the long smoke screen pictured here as preparation for another amphibious assault on some enemy-held territory.

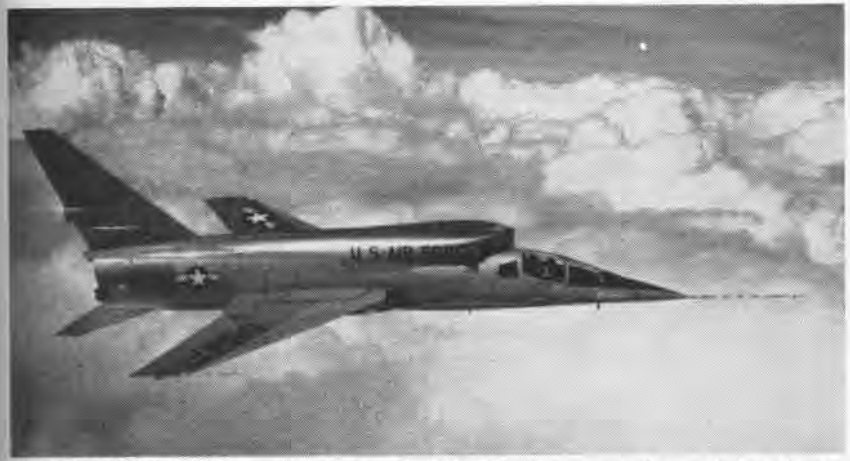
Smoke laying technique, however, is an almost forgotten art in today's nuclear age of warfare and the sight of smoke screen floating over the beach near Camp Pendleton, Va., undoubtedly stirred the hearts of many "Old Timers" at NAS OCEANA.

This smoke-laying technique, long associated with "conventional" warfare, is another example of the Navy and Marine Corps policy of training for any type of conflict—brush fire or major conflict anywhere in the world.

Attack Squadron 16, attached to Carrier Air Group 182 at NAS OCEANA, recently provided smoke screens for an exercise with Amphibious Group 4 off the Virginia Capes.

New pilots of the squadron volunteered for the "Old Timers" mission and VA-16, with the assistance of Marine Aircraft Engineering Squadron 12 at Quantico, Va., broke out their smoke laying publications and filled tanks to capacity.

The exercise went off smoothly. More than two miles of excellent smoke was laid to conceal amphibious movements afloat, proving once again the Navy is ready for any mission.



THE DOUBLE MACH-BUSTER *was designed and built by North American Aviation's Los Angeles Division. This F-107 jet fighter is a "twice the speed of sound" aircraft delivered to the National Advisory Committee for Aeronautics at Edwards AF base for research at high Mach numbers.*

1800 Visit FAWTU Pacific

North Island Unit Has Dual Role

More than 1800 persons witnessed a three-hour demonstration of aircraft, air maneuvers, and equipment of the planes and men of Fleet All-Weather Training Unit Pacific.

"Because of the double duty role this North Island based unit is playing today," said Capt. T. J. Walker, unit CO, "we can be sure there will be no unwelcome guests at our open house, as there were 16 years ago at Pearl Harbor." Capt. Walker's command is the only Navy unit with the double purpose of training fleet pilots to fly by instruments in all weather, day or night, and being part of the Continental Defense Command.

'CHUG-A-LUG' AT 20,000 FEET

SOME MONTHS ago one of Convair's new R3Y seaplanes known as the *Tradewind* cruised over the Southern California coast. Four Navy jet fighters followed in tight formation. Not a few ground observers were amazed as the four jets attached themselves to four flexible lines that trailed from the huge cargo-transport turned tanker.

What the onlookers didn't know was that the four jets were actually demonstrating the *Tradewind's* versatility as a converted aircraft by the practical transfer of fuel from the world's first seaplane-tanker capable of multiple aircraft refueling; and that the fighters were refueled simultaneously after they had engaged with the trailing refuel drogues.

More impressive to official witnesses was the knowledge that four additional jets could have been refueled in rapid succession.

Since this convincing demonstration of the big seaplane's in-flight refueling capabilities, four of the *Tradewinds* have been converted to tanker configuration and are currently assigned to the Fleet Tactical Support Squadron Two at Alameda. Operating from the West Coast base and in Hawaii, both Navy and Marine squadrons are being qualified at a rapid clip in aerial refueling techniques.

Historically, the R3Y was not conceived in its design stage as an airborne gas farm. The two original versions delivered by Convair as a possible replacement for the JRM *Mars*, were a side-loader, similar to most present day transports, and a bow-loader. The latter, dubbed the "Flying LST," was envisioned as a principal cargo troop carrier during amphibious operations. After beaching in a manner employed by its surface namesake, and following discharge of its cargo, the giant seaplane could be backed off by use of reverse props and another mission undertaken.

Already considered a versatile performer in the highly vital field of seaplanes, further evidence of the R3Y's flexibility was realized when the Navy's demand for an aerial tanker capable of refueling jet fighters was made apparent.

In the face of this demand, Convair regarded the R3Y as a natural candidate for tanker configuration due to its unusual load-carrying capability, range and speed. As a seaplane, it could render fleet support wherever carriers deployed. Lastly the concept of the big *Tradewind* operating as a multiple refueling agent was determined to be a feasible one.

Convair then devised a change-over kit which could convert any or all of the R3Y's to the task. The kit consisted of approximately 600 pounds of fixed equipment and 6000 pounds of removable equipment. Permanent provisions included structural modification to accommodate four refueling pods, fuel and hydraulic line installations in the wing outer panels, and electrical wiring changes throughout the airplane. Removable equipment included hose reels, pods and pylons, an hydraulic system in the outboard engine nacelles, a-c alternators in the inboard nacelles, and two operator consoles in the seaplane hull.

The *Tradewind* configuration featured four hose reel units mounted on the wing of the airplane, one beneath each outboard engine nacelle and one beneath each wing outer panel, approximately four feet inboard of the wing tip. The hose reels with the drogue rewind and trapping mechanisms were contained inside individual streamlined Fiberglas-faced

aluminum honeycomb core pods. (See picture at right.)

Configuration of the R3Y did not require the addition of fuel tanks. Fuel for the receivers is transferred from the integral fuel tank system. Each of the in-flight refueling supply tanks contains a centrifugal-type fuel transfer pump which has a capacity of 250 gpm at 20,000 feet. Use of a crossfeed valve permits the individual pump to supply fuel to either of the two refueling reels on the same side of the airplane. Crossfeed of fuel from one tank to another is only possible in the R3Y's main fuel system.

Special reels were designed primarily for the R3Y tanker and they are capable of refueling operations through a wide speed range. Each reel has a hose capacity of 105 feet. The inboard reels are adjusted to trail 85 feet of hose while the outboard reels put out 55 feet. This variation in arrangement of hose lengths provides optimum receiver position during refueler operations. Automatic controls in the reel power system allow the receivers to "yo-yo" or vary position in a limited area while the receiver is engaged. Refueling is possible within a 30-foot range of the initial engagement position and fuel is automatically shut off if a receiver approaches too close to the tanker pods. Indicator lights inform the receiver pilot of "ready to refuel" and "fuel transfer" conditions. Two inflight refueling operator consoles are installed in the tanker hull to maintain control over the hose reels and refueling operations.

When connection is made by the receiving jet, valves automatically open and fuel flows at a rate of 250 gallons per minute. Once his plane is topped off, the pilot of the receiver merely decelerates slightly, drops back from the drogue and automatically disengages the connection. Fuel flow is cut off automatically; the hose with its drogue is reeled into the pod and the door closes.

Safe clearance between the individual receivers and between the receivers and the R3Y is maintained by virtue of adequate pod spacing (approximately 35 feet between the pods), along the underside of the airplane wings, and by the variable trail lengths of the refueling hoses. The inboard drogues trail approximately 75 feet aft of the wing trailing edge and 30 feet below the horizontal stabilizer. The outboard drogues trail approximately 50 feet aft of the wing trailing edge and about 10 feet below, but well forward of, the horizontal stabilizer.

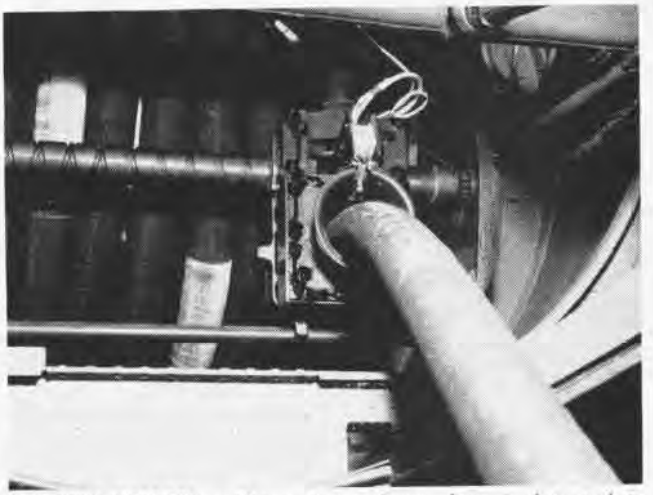
Emergency reel controls are also included to protect both the receiver and the tanker. A brake actuated by the tanker pneumatic system prevents the hose from unwinding completely from the reel. In the event of complete power failure, an explosive-charged guillotine is employed to detonate and sever the hose at the reel to prevent damage and eliminate the danger which might be caused by a tanker landing with a trailing refueling hose.

Since its delivery to Fleet Tactical Support Squadron Two, the R3Y tanker has been steadily employed in qualifying both Navy and Marine jet squadrons in air-to-air refueling techniques.

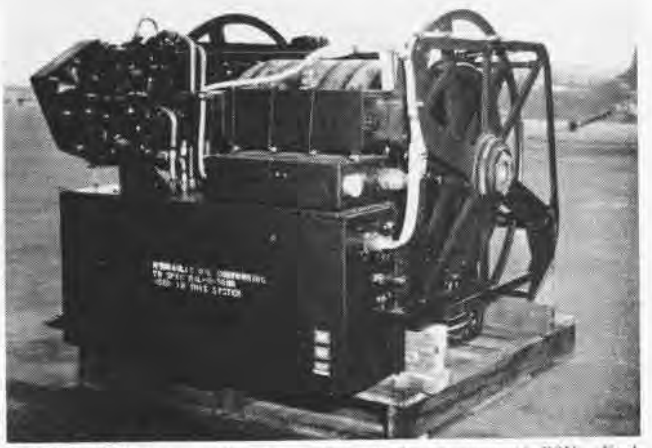
The multiple fuel transfer capability of one R3Y makes possible the qualification of up to two squadrons in a single day's operation.

With the recent development of the FJ-4B and A4D-2 high-altitude, high-speed "buddy tanker" system, in addition to proven effectiveness of R3Y, the operating range of carrier-based jet fighter has been given a healthy extension.

STREAMLINED *Fiberglas aluminum honeycomb core pods beneath R3Y engine nacelles house individual hose reels, drogue rewind gear.*



EXPLOSIVE-CHARGED *guillotine device shown above is detonated to sever hose in event of power failure which prevents hose rewind.*



ONE OF FOUR *hose reel units used in pods on wing of R3Y. Each reel has hose capacity of 105 feet. Fuel flow rate is 250 gpm.*

LETTERS

SIRS:

In your August issue, you had an article concerning CCA approaches made by the USS *Yorktown*. Now we don't want to belittle their efforts, but we think we can top them in all respects.

CCA gear was installed aboard the *Princeton* just prior to departure on this cruise, and with two months to go before returning Stateside, we have already racked up our 500th approach. A high total of one day's operations was 60.

All CCA approaches made by the *Princeton* crew have been with the assistance of our embarked squadron, VS-38.

The CCA team on board the "Sweet Pea" includes Lt. R. C. Notz, OIC, H. A. Hardin, ACC, R. L. Mursinna, AC1, J. L. Harrison, AC2 and R. H. Snyder, AC2

HAROLD A. HARDIN, ACC

News Editor Leaves Japan

Cdr. Booda Headed for BuPers Post

A former editor of *Naval Aviation News* (1949-1951), Cdr. Larry L. Booda, who has been serving as Executive Officer of NAF OPPAMA, has reported to the Bureau of Naval Personnel to be head of the Recruiting and Publicity Branch.

During his last tour, he worked closely with VAdm. Hidemi Yoshida, Commandant of the Yokosuka Regional Headquarters of the Japanese Maritime Self-Defense Force, in training Japanese pilots and men.

VAdm. Yoshida bid a farewell to Cdr. Booda, his wife, son and mother upon their departure from Japan.

VADM. YOSHIDA BROUGHT PARTING GIFT

Olathe Has Wheel Changer

Device Helps to Move Lame F9F's

A "quick-fit" emergency spare wheel for F9F aircraft has been developed at NAS OLATHE to help clear the duty runway for action. Two of the emergency wheels, with jack and jack pads, are carried in the aircraft maintenance emergency truck and are readily available for use when blowouts or wheel malfunctions occur.

Credit for the development has been attributed to Marine MSgt. O. A. Ray who brought the idea home from a VMF cruise, and to George R. Durkin, civilian aircraft inspector, and Chester J. Campbell, civilian machinist, for drafting, fabricating and developing the units involved.

Procedures involved in using the "quick-fit" assembly are to remove the snap ring, cover and nut locking clip on the main wheel, then insert the jack pad. The aircraft is then raised with a hydraulic jack and the new wheel assembly is locked into place, allowing the aircraft to be towed to any location on the field.

Photographs and diagrams of the device may be obtained from the Aircraft Maintenance Officer at Olathe.

PICTURE CREDIT

NAVAL AVIATION NEWS is indebted to Anthony & Joseph Pavia, Photo Goods Dealers at Malta, for their courtesy in permitting us to use on page 1 their photograph of the USS *Alameda County*.

While gathering human interest incidents for the story, NANEWS interviewed one of the former crewmen of the *Alameda County*.

"One of the most surprising incidents, I can recall," he said, "was our first visit to Malta. We proceeded slowly into the harbor, dragging our anchor for maneuverability.

"In the time it took us to get from the breakwater to our berth, the commercial photographer [the Pavia firm] had taken our ship's picture, developed his film and met us at the dock with prints to sell.

"They were good pictures, too."

CONTENTS

● COVER

Pinto trainer on special test flight. Read the story of Temco Aircraft Corporation on pages 8-9. This is the twelfth in a series of articles on aircraft manufacturers.

● CREDITS

Information and photographs used in the Exotic Fuels story, pages 12-14, were obtained from National Bureau of Standards, NACA, BuAer, The American Ordnance Association, West End Chemical Company and Callery Chemical Co.

● SUBSCRIPTIONS

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SQUADRON INSIGNIA

The Navy's first helicopter anti-submarine squadron and one of its latest successors offer a contrast as each effectively depicts its mission. HS-1 uses the small sea horse to signify the elusive submarine. HS-9 shows the lurking underwater craft, the rotary-wing, sounding bar and electronic equipment. A thunderbird riding into a storm on a radio range leg indicates ATU-107's emphasis on instrument flying and radio navigation training. The squadrons of CVG-21, dedicated to security, portray their role by four gauntleted hands bearing a torch.

HS-1

ATU-107

CVG-21

HS-9

YOUNG MAN ON THE WAY UP

FROM THE DECK UP, a Naval Aviator is a highly trained professional. He's a master aviator with a thorough knowledge of power plants, related systems, and the aerodynamics of high performance aircraft. His wings of gold certify his expertness in such specialized fields as aerology, navigation and communications. Above all, he is a dedicated Naval Officer. Make this proud profession your career by qualifying as a Naval Aviation Cadet or an Aviation Officer Candidate. Visit your nearest Naval Air Station or Navy Recruiting Office today. Start yourself on your way up.

★ ★ ★ ★ ★