

NAVAL AVIATION

NEWS



40th Year of Publication

JANUARY 1959

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SUMMER TIME IN THE DEEP SOUTH

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☆ During the Antarctic winter night at Little America many man hours were spent getting aircraft dug out



★ and ready for summer flights but there was also time for exploring crevasses like one above.

NAVAL AVIATION NEWS

OUR FORTIETH YEAR OF CONTINUOUS PUBLICATION JANUARY, 1959

Harmon Trophy Awarded Navy Blimp Commander Honored

The Harmon International Aviation Trophies for 1958 were awarded by President Eisenhower to Cdr. Jack R. Hunt, USNR, and Gen. Curtis LeMay, Air Force Vice Chief of Staff, in ceremonies at the White House.

Commander Hunt was honored as commanding officer of the ZPG-2 blimp which in March of 1957 established the longest non-stop, non-refueled blimp flight ever made, a total of 264 hours and 12 minutes.

The blimp took off from the South Weymouth Naval Air Station and roamed the Atlantic for 11 days. It cruised off the coast of Portugal, off Africa and back through the West Indies to Key West, Fla., for a total of 9,448 miles.

Gen. LeMay was cited for having piloted a strato-tanker in November of 1957 from Westover Air Force Base in Massachusetts to Buenos Aires.

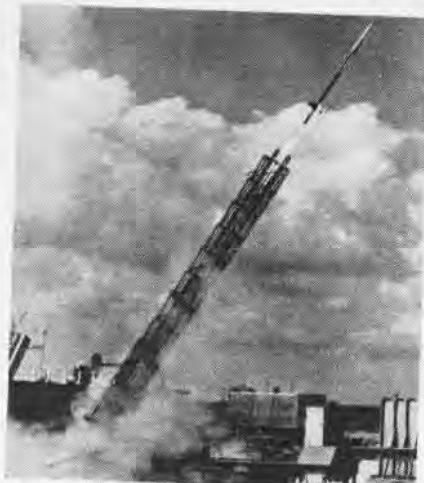
The Harmon Trophies, awarded annually to the outstanding aviator, aeronaut and aviatrix in the world, were established in 1926 by the late Col. Clifford B. Harmon. There was no award given this year for the outstanding aviatrix.

The President congratulated both men as he gave them scrolls signifying outstanding achievements in aviation.

Arcon Tests Successful Study Linked to Polaris Problem

Test of *Arcon*, a new research rocket which is expected to help predict flight vibration conditions for the *Polaris* missile, have been made successfully. *Arcon* can carry a 40-pound instrument payload to a height of 70 miles or a 10-pound payload to 100 miles. An advanced general purpose upper-air vehicle, this missile is six inches in diameter, approximately 12 feet long.

Arcon test flights at Wallops Island,



ARCON LEAVES WALLOPS ISLAND LAUNCHER

Va., provided flight vibration data that will be compared with the static tests of the *Arcon* carried out at the Atlantic Research test facility. These studies are expected to help scientists predict flight vibration conditions for the large *Polaris* rocket from its static firing tests.

Naval Research Laboratory and BUORD sponsored *Arcon's* development by Atlantic Research Corporation of Alexandria, Va. Once the *Arcon* was constructed, NRL conducted the tests.

Another new rocket, *Iris*, designed to carry a 100-pound instrument package 200 miles high, is expected to be completed early this year. A third, *Arcas*, which is useful in routine weather data collection as well as research, began tests in October.

Scale model rocket performance studies are expected to benefit rocket engineering generally, in addition to their technical contributions to the *Polaris* program.

Once "scale up" conditions are worked out on a firm technical basis, new concepts can be tested experimentally with scale models at greater

speed and economy before full scale units are developed, the Navy believes.

Becomes 4000th Ejectee Alameda Trainer Used Since 1952

Cdr. John Leonard, Officer in Charge of FaeTuPac's detachment at NAS ALAMEDA, became the 4000th person to use the jet ejection seat trainer since its installation in 1952.

FaeTuPac provides technicians and maintenance for the trainer. It is designed to provide a realistic and efficient means of training aviation personnel in the correct procedure and characteristics of seat ejection from disabled aircraft during flight.

'Space Man' Given Medal Awarded for Experimental Work

LCdr. Jack Neiman, Jr., the first person to prove that man can exist in space outside of a pressurized space vehicle for an extended period, has been awarded the Commendation Ribbon with Medal Pendant "for his significant contribution to the advancement of Naval Aviation."

Ceremonies were held aboard the heavy cruiser USS *Newport News*, flagship of the Atlantic Fleet Cruiser Force Commander, at Golfe Juan, France. Neiman accepted the medal and citation from RAdm. Lewis S. Parks.

On May 9, 1958 at NAS NORFOLK, Neiman entered a huge low pressure chamber. Wearing the Navy's Mark 3 full-pressure suit, he was subjected to simulated altitudes of from 80,000 to 110,000 feet under space conditions. When he emerged from the chamber on May 11, he had spent 44 hours at an average altitude of 105,000 feet in order to simulate space travel.

In other experiments at the Norfolk chamber, personnel have been carried to altitudes as high as 139,000 feet for short duration while probing the mysteries of flight in outer space.



PROTOTYPE P3V-1 long-range Navy ASW plane makes first flight. The Navy awarded Lockheed a \$10,000,000 pre-production contract for work on the four-engine sub-hunter in October. This test bud will make it possible to do evaluation work and carry on in-flight systems development.

Lakehurst Runway Opened Unlimited Jet Operations Possible

The Naval Air Test Facility (Ship Installations), Lakehurst, N. J., passed another milestone when an 8000-foot test runway was officially opened.

Capt. Richard M. Tunnell, the commanding officer of the Test Facility, cut the ribbon and aircraft attached to the command roared down the runway. Cdr. Ray C. Tylutki, executive officer, made the first takeoff and landing in an F9F-8 Cougar.

The length of the strip will make unlimited jet operations possible. Training flights will be conducted in preparation for test work on the aircraft launching and recovery systems.

Navy-Industry Safety Meet Problems, Solutions are Studied

Sponsored by the Bureau of Aeronautics and the U. S. Naval Aviation Safety Center, the second Navy-Aircraft Industry Conference on Aeronautical Material Reliability was held for two days at Virginia Beach, Virginia. Conference keynote was "Challenging the Weapons System Complexity Barrier."

More than 300 representatives of industry and Navy listened to addresses by VAdm. R. B. Pirie, DCNO (Air); RAdm. R. E. Dixon, Chief of BUAE; RAdm. R. M. Reynolds, Assistant Chief for Field Activities, BUAE; RAdm. L. D. Coates, Assistant Chief for Research and Development, BUAE, and leading figures in the aircraft industry.

The conference focussed attention of the Navy and the aircraft industry on the need for improved coordination on

the part of each to insure improved reliability. Conference members were told that the cost of developing new weapon systems, in terms of money, time and technical manpower is rapidly approaching the limits of our national capacity. Another discussion concerned the adverse effect on national security if weapons of inferior quality are introduced into the fleet.

The conference highlighted problems, and pointed to corrective measures.

Solid Propellants Sought Research Programs to be Launched

The Army, Navy and Air Force have been authorized, on behalf of the Advanced Research Projects Agency, to initiate negotiations with four U. S. chemical companies which will lead to major research contracts for an integrated solid propellant program.

The companies are American Cyanamid, Dow Chemical, Esso Research and Engineering, and Minnesota Mining and Manufacturing Company.

Authorization for the contracts, worth between one and two million dollars each, followed competitive bidding by firms in the chemical industry.

Sortie Records Smashed VA-146 Rates High at El Centro

According to Attack Squadron 146, continuous sortie records for Navy FJ Fury jets were broken while the squadron was engaged in weapons training at NAAS EL CENTRO, California.

VA-146, a Miramar-based outfit flying the FJ-4B Fury jet, made 679 sorties during their three-week training record. The previous record of 198

was held by VA-214, based at NAS MOFFETT FIELD.

The sorties were flown in groups of four planes; each group being launched as the preceding flight landed. This meant that eight of twelve planes the squadron had at El Centro were in the air during the whole flight period each day of the deployment.

Maintenance was outstanding. Leading chief of the maintenance crew, T. H. McClury, ADC, said, "Our biggest problem was wheels and tires. The temperature ran a continuous 105° and the runways were about 135°. That kind of heat leads to burned out brakes, bad tires, overheating in hydraulic systems, etc. However, it is good for the electrical parts. Hot weather is easier on electrical parts than cold or damp weather."

The pilots who had only one to two hours rest between flights, had originally set a goal of 500 sorties, but reached that mark during the second of the three-weeks weapons practice period. By Wednesday of the next week, the mark was at 679 sorties.

During the three-week training period, each pilot logged 48 hours of flight time. The squadron scored a grand total of 850 flight hours.

ATU-202 Achieves Record 10,000 Accident-Free Flight Hours

Advanced Training Unit 202 at NAAS KINGSVILLE, Texas, achieved 10,000 accident free hours recently. Cdr. Alexander Vraciu, OinC of the unit and Safety Officer, LCdr. George Bane, were on hand to watch Aviation Student Harold E. Plum perform a well executed precautionary approach to a field arrested landing which signalled the 10,000th hour.

Naval Cadet Plum demonstrated a thorough knowledge of his aircraft and its emergency procedures.

Ten thousand accident-free hours in jet aircraft is equivalent to 125 times around the world at the equator. However, the flying involved in achieving this record is considered much more hazardous than point-to-point travel in an airliner.

The majority of the time was flown by student Naval Aviators with less than 300 hours flying time and less than 50 hours in jets. Many flew jet aircraft for the first time as members of Advanced Training Unit 202.

Subs to Get Famous Names FBM Subs Honor Great Americans

Nuclear submarines designed to carry *Polaris* missiles will bear the names of famous Americans. The first three will be named *USS George Washington*, *Patrick Henry*, *Theodore Roosevelt*.

Joint Army-Navy Exercise Army Helicopters Fly from Thetis Bay

Army H-21 helicopters operated from a U. S. Navy carrier, the *USS Thetis Bay* (CVHA-1) in joint Army-Navy amphibious Operation *Rocky Shoals* off the coast of California.

The *Thetis Bay* steamed off San Simeon Bay on the "occupied" coast early on the morning of D-Day, but instead of the usual complement of U. S. Marines, the "helo" carrier was carrying part of the 57th Transportation Company equipped with Army H-21 helicopters and a portion of the 1st Battle Group, 12th Infantry, 4th Infantry Division. Both Army units are based at Fort Lewis, Washington.

Although not all of the pilots had previously carrier qualified, performance in landing, cargo pick-ups, and air discipline was considered outstanding. Moreover, without previously qualifying, three aircraft were launched and two made landings after dark.

The 57th Transportation Company made a total of some 300 landings on the *Thetis Bay* during this operation.



NEW JET NIGHT ATTACK PLANE IS BEING BUILT BY DOUGLAS AIRCRAFT AT EL SEGUNDO

Third A4D Version Ordered Advanced Features Incorporated

Douglas Aircraft Company has been awarded a \$97-million contract for production of A4D-2N *Skyhawk* attack aircraft. The A4D-2N is under flight evaluation at Edwards AFB and delivery is expected this year.

The A4D-2N is the third version of the *Skyhawk*, the Navy's lightest jet night attack airplane. Advanced features of the -2N are improved weather and navigation capabilities, pressure fueling, and inflight refueling.

The new *Skyhawk* is powered by a single Wright J-65 turbojet engine. It has the same body style as the A4D-1 and -2 but its nearly 40-foot length is

almost a foot longer than the two previous versions.

Navy and Marine aviation units will use the new aircraft.

The A4D-2N is a single-place, low-wing aircraft of aluminum alloy construction. It is designed to operate from all sizes of aircraft carriers and from short landing fields.

It can carry atomic weapons, rockets, guided missiles, machine guns and other weapons. With a speed in excess of 650 mph, it can fly coast-to-coast non-stop without refueling in flight.

The A4D-1 *Skyhawk*, first Navy aircraft designed as a light attack jet, was first flown by Douglas in 1954.

Thompson Awards Made Ashworth, Hayward, Wilcox Named

This year's recipients of the L. T. E. Thompson awards for outstanding contributions to the advancement of ordnance are Capt. F. L. Ashworth, former Naval Ordnance Test Station commander; RAdm. John T. Hayward, former experimental officer; and Howard A. Wilcox, current head of the Weapons Development department at NOTS.

The Thompson awards were established in 1956 as NOTS' highest recognition for exemplary individual achievement. With the awards, the station perpetuates the vision, leadership and persistent effort of Dr. Thompson, first technical director, from 1945-51, now an Advisory Board member and consultant to United Aircraft Corporation, Norden Division, White Plains, New York.

Final selections for the award are made by the station commander, acting on suggestions of an advisory panel.



A SQUAD OF TROOPS FROM 12TH INFANTRY, 4TH DIVISION, EMBARK IN AN ARMY H-21



GRAMPAW PETTIBONE

Poopy Bag

One fine morning recently, a ZS26 airship became airborne on a routine patrol flight from its East Coast base. The wind was calm, with broken clouds at 9000 feet.

The take-off run was uneventful, but during the climb, at about 200 feet altitude, a violent jolt in the controls was felt, and the airship began orbiting to the left, still climbing, with no apparent response to rudder control. The airship commander declared an emergency, ordered both bomb bay fuel tanks jettisoned, and made the decision to attempt an immediate landing. Using offset power on the engines to maintain some directional control, a circling landing approach was made. They hit hard, the landing gear collapsed as the airship hit in soft terrain, some fuel cells were ruptured, and the prop sheared from the port engine. The starboard engine also struck the ground and suffered sudden stoppage.

The airship bounced and ascended rapidly to about 800 feet, a free balloon.

Descent was attempted by valving helium. This was partially successful, but super heating under the hot sun caused ascent again.

A helicopter attempted to aid in



descent of the airship by hovering overhead and forcing it down with rotor wash. With this assist the airship descended to 500 feet, levelled off, and the crew manned *abandon ship* stations. The airship drifted under some low clouds, getting a cooling effect, which caused it to descend at 100-200 feet a minute. Unsuccessful attempts to rip the bag were then made. The *abandon ship* order was given, and the crew escaped via various exits on dragging lines at heights which varied

from 20 to 60 feet above the ground.

The crewless airship free ballooned for the next three hours on a busy airway and finally crashed in a remote area approximately 20 miles from home base.



Grampaw Pettibone Says:

Shades of the Shenandoah! These fellers just plain forgot they had a mighty fine balloon to ride in and panicked.

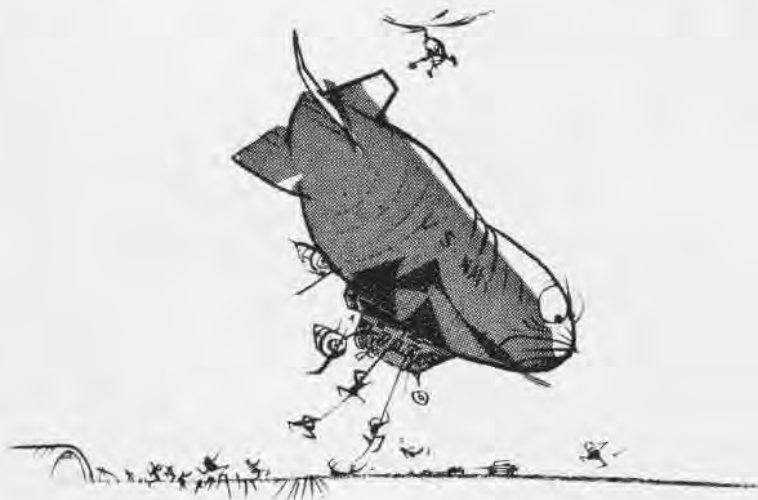
If they'd valved helium and settled her in real easy right at the beginning, treated the airship like a free balloon and not tried to stick it in the ground under power like a dart, they'd have made out better. One thing they had was *time*. The ship wasn't damaged, engines were operating normally, plenty of fuel aboard, and the bag was intact. Weather was no problem.

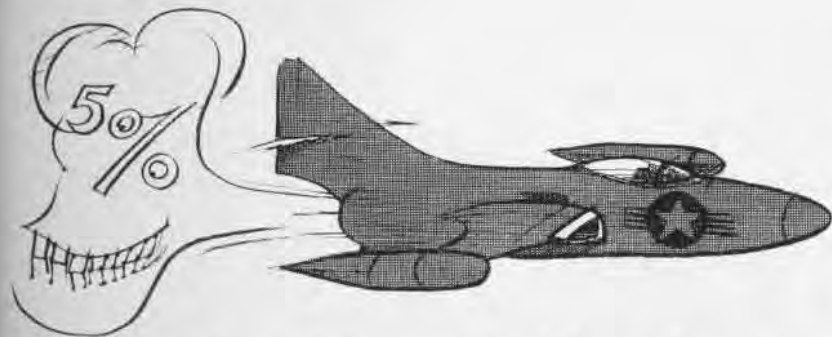
Way back in September 1925, VAdm. Rosendahl, then a Lieutenant, successfully *free ballooned* the floating nose section of the airship *Shenandoah* from 10,000 feet to earth after the giant dirigible had broken in half in a storm.

In those days we had only two large airships and lighter-than-air men were regarded as a breed apart, highly qualified and motivated professionals. I'd sure hate to think the breed was thinning out. Abandoning ship as hastily as was done in this case doesn't follow at all the past fine traditions of lighter-than-air men. It'd seem that there was plenty of time left to figure out the *best*, not the *fastest* way of getting the ship down.

Close Shave

A student Marine aviator experienced difficulty regulating the heat control in his 191-5 *Panther* soon after take-off on a routine syllabus flight. He informed his instructor, who was flying wing on him, of his troubles, and after a short discussion via radio, he elected to continue the flight. Climbout was continued, although the pilot became very hot and dizzy. On reaching 21,000 feet altitude, the student's aircraft suddenly went into a steep dive. The instructor followed him down and after repeated attempts finally con-





tacted him on the radio and talked him into a pull-out and level attitude somewhere below 10,000 feet.

The young man responded sluggishly to all instructions, but was successfully talked down to a landing by the instructor after 15-20 minutes of flying at low level using 100% oxygen.

Investigation by the flight surgeon revealed that the student aviator wore his oxygen mask loosely because it did not fit well and had caused a sore on his nose. Prior to the flight and after starting his aircraft, the student had waited for taxi clearance with the canopy open and oxygen on *normal*, with exhaust gases of other jet aircraft starting engines swirling over him.

Post flight medical analysis revealed a 17% carbon monoxide blood saturation in the young man. Further investigation revealed that all personnel in the hangar area had incurred carbon monoxide blood saturation ranging from 8 to 22%. Owing to the direction of the prevailing wind, exhaust gases from parked and taxiing jet aircraft were constantly blown into the hangar, shop, and ready room spaces.



Grampaw Pettibone Says:

Goldurn it! This is a touchy subject 'cause the does say jet gases contain 95% air and the balance essentially all carbon dioxide. This whole situation, which revealed untold possibilities for in-flight accidents, plus Murphies, due to partial incapacitation in the thinking processes of maintenance personnel, arose from the effects of JET engine exhaust gases! Heavy cigarette smoking, however, can give as much as 10% carbon monoxide blood saturation, and since a mere 3% can cause measurable impairment of vision and altitude tolerance, in many cases the basic groundwork for an incident such as this is already provided and probably accounted for many of the lower blood saturations reported among maintenance personnel in the hangar.

A close look-see at all operations and maintenance areas by your flight surgeon may save both you and your outfit from a close shave such as this. Use his technical know-how. He's there to help you.

Wearing a loose oxygen mask is as bad as not wearing one at all. You cannot receive a proper oxygen supply unless your mask is properly fitted. SOP is to use 100% oxygen on ALL take-offs and landings in jet aircraft.

Lost

A pair of intrepid aviators departed their home base on a scheduled local area fam flight in a TV-2. Stalls and simulated landing patterns were practiced at fairly low altitudes. It was a beautiful day with only scattered clouds and 10 miles visibility, so neither man was tracking their position. Fuel was getting low and they decided to return home.

The pilot attempted to tune in the home base on the radio compass without success. They were LOST. Mountains below finally gave them the clue that they were south of their base. Fuel was really tight by now, but an unknown grass air field, obviously a small civil airport, was sighted just as radio

contact was established with the home base. A decision to land immediately was made and the home tower informed.

The pilot made his first approach to the north runway. He had to fly over a barn just off the approach end, so the TV touched down fast almost halfway down the runway, and he took a wave-off indicating 35 gallons of fuel remaining. A low tight pattern and approach was made to the 2900 foot northeast grass runway at 100 to 105 knots. The aircraft wheels barely knocked the tops off of some corn shocks on final and touched down in the first 75 feet of the runway indicating 20 gallons of fuel. He used moderate braking on the grass and successfully stopped 300 feet from the fence.

Six days later the TV was partially dismantled, towed under a viaduct, reassembled, and safely flown off a limited access highway.



Grampaw Pettibone Says:

Shucks, fellers, my old hide's pretty tough and thick, but long, long ago I learned that when you got a job under you that's suckin' air and blowin' smoke you've just gotta keep track of your position *all* the time! A copy of RADFACS should be in the aircraft every time you go out, even shootin' landings in the field pattern! If you'd taken a minute or two to check RADFACS, you'd have surely been able to tune in and identify a station, for there were *five* good LF stations within 10 miles of you, including two UHF/DF facilities! Don't be so proud. Switch to guard channel and sing out your Pan or Mayday call. Help is always available. You lucked out.



Drifting along with a song in our hearts And about as much gas in a couple of parts.

Supply Experts Hold Meet Fifteenth Annual Conference at ASO

The 15th annual Naval Aviation Supply Conference was held for three days in November at the offices of the Aviation Supply Organization, Philadelphia. Capt. J. J. Appleby, SC, ASO's exec, served as chairman.

More than 75 senior Navy and Marine Corps supply representatives from BUAE, BUSANDA and 55 major air stations, supply depots, fleet and training commands, attended the conference in order to discuss topics of great importance to the ASO network.

A new feature this year was the attendance and participation of the supply officers of three aircraft carriers (USS *Wasp*, USS *Hornet*, and USS *Saratoga*) to bring the problems of the fleet into sharp focus.

Part of the first afternoon's presentations were broadcast to field personnel over the TXR network. RAdm. J. W. Crumpacker, CO of ASO-NASD, welcomed the conferees to the ASO and extended greetings to officers and civilians from the fleet and supporting air stations who listened in on the broadcast.

RAdm. J. W. Boundy, Chief, Bureau of Supplies and Accounts, stressed the improvement and modernization of the Naval Aviation Supply System through clear thinking, the interchange of ideas and decisive action. RAdm. R. E. Dixon, Chief of BUAE, emphasized the need for coordinated action.

Logs 100 Barrier Flights 2000 Hours Over North Atlantic

Ltjg. James T. Odee became the first pilot of Airborne Early Warning Squadron 11 to fly 100 AEW barrier patrols over the North Atlantic Ocean.



LTJG. ODEE AT CONTROLS OF WV CONNIE

In becoming VW-11's first "century pilot," the former VW-13 pilot spent 2000 hours aloft on radar patrols and made many takeoffs and landings under extreme flying conditions.

HS-7 Passes Milestone 10,000th Safe Hour Logged at Sea

Pilots of Helicopter Antisubmarine Squadron 7 have logged the squadron's 10,000th hour of accident-free flight operations. The milestone was passed when an HSS-1 was deployed aboard USS *Valley Forge* on Operation *Lantflex*.

In the accident-free period the squadron made a transition from the HO4S to the HSS-1 in August, 1957.

Marines Employ 'Morest' Carrier Gear in Use on Formosa

A modified version of the arresting gear used to recover supersonic jet aircraft aboard carriers is being used ashore in southern Formosa by a Marine jet squadron.

The ground mobile arresting unit being used by Marine Air Group 11 has been called "Morest." Its main func-

tion is to recover aircraft on runways that may be either wet and slippery or too short for normal recovery.

It is also used to halt aircraft which cannot stop under their own power because of mechanical troubles.

Aviation Leaders Honored Three Trophy Winners Announced

Recipients of the Collier, Wright and Brewer trophies have been announced by the National Aeronautic Association.

Gen. Edward P. Curtis, former Special Assistant to the President of the United States, is the recipient of the Collier Trophy Award for 1957. A miniature of the renowned trophy was presented to Gen. Curtis December 16, 1958 for his "Aviation Facilities Planning Report," a study that covers the complex problems involved in the use of air space in the jet age.

The Collier Trophy, established in 1911 and awarded annually by NAA and sponsored by *Look* magazine, is given for the greatest achievement in aviation in America, the value of which has been demonstrated in actual use during the preceding year.

The Wright Brothers Memorial Trophy was awarded to John Francis Victory, Assistant to the Administrator of the National Aeronautics and Space Administration, at the Wright Day Dinner, December 17. The award to Dr. Victory was made on the basis of a career in aviation that began in 1912.

Dr. Evan Evans, Executive Director of the National Aviation Education Council, has received the 1958 Frank G. Brewer Trophy for outstanding work in aviation education. It was presented by T. G. Lanphier, Jr., president of National Aeronautic Association.



EIGHT NAVY HTL-7 training helicopters are lined up at Bell Helicopter Corporation's Hurst plant between Fort Worth and Dallas, Texas, before being flown away by Navy pilots. The HTL-7 is one of

the most highly instrumented trainers. Eighteen of them were ordered. The HTL-7 is powered by a Lycoming VO-435 engine which is rated at 240 horsepower for takeoff and 200 hp for continuous operation.



A REVOLUTION IN READINESS

A PAIR of powerful FSU *Crusaders* thunder off the deck at NAS CECIL FIELD and streak toward a practice intercept over the Atlantic Ocean. The flight leader is a very junior lieutenant; his wing man is a prospective air group commander in the final phase of his training before he reports aboard an attack carrier.

A few miles away, at Mainside NAS JAX, a flight of bantam-sized A4D *Skyhawks* is launched for an imaginary nuclear attack against an enemy—each plane carrying in one package the destructive power of many thousands of WW II bombers, battleships and artillery regiments.

Simultaneously, F11F *Tiger* interceptors are being launched from NAS OCEANA on intercept and CAP missions while prop-driven AD-6 *Sky-raider* attack planes take off from the same base for attack against an imaginary enemy.

In the same dawn half-light, F3H *Demon* and F4D *Skyray* night fighters are returning to Key West from simulated night intercepts.

Though separated geographically and as complex as the several incidents would appear, each component of activity has several common denominators, and each fragment of the operation fits into a neat, well-planned slot. The planes, the pilots who man them, and the mechanics who

maintain them are components of Carrier Air Group Four, until recently designated Replacement Air Group Four.

The training flights in which they are engaged are part of a brand-new, yet very old, concept which in reality is a return to the Advanced Carrier Training Groups of World War II.

The missions are being flown in an aggressive and concerted effort to raise the level of combat readiness in the Attack Carrier Fleet to its highest possible degree. Success of the program, still in its first year, is already being realized in the fleet.

Naval Aviation News went to CVG-4 headquarters at Cecil Field to write a progress report on the replacement training program; to learn why and how it started, how the program is administered, and how effective it is, plus what effect it will have on fleet striking power.

Capt. Robert G. Dosé, group commander, who bosses the program from four small office spaces in a Cecil hangar, explained:

"A fighter or attack pilot ordered to an air group in World War II was processed through what was then called an Advanced Carrier Training Group. He mastered the fighter or attack plane he was to fly before he reached the carrier. In short, he was combat-ready when he reported.



LTJG. J. F. RUCHALA, TYPICAL RP, IN FRONT OF CAG-4'S F8U

"AFTER THE WAR the ACTG's were disbanded and the whole process of training replacement pilots changed complexion. Everything was pegged on a particular carrier's deployment schedule. When the ship returned from a cruise, its air group was so thoroughly disbanded that in some instances only one or two trained pilots were still aboard for the next deployment.

"The new air group came aboard grossly untrained and began its real training after the ship sailed. In my opinion, it was worse than a rugged training method; it was pernicious. Readiness naturally suffered until all pilots and maintenance crews became proficient.

"Then in 1956, when six new high performance jet types were introduced to the fleet, the accident rate in new type aircraft reached alarming proportions. This accident rate, coupled with a reduced inventory of airplanes, focused attention on the need for a revised approach to training.

"The late RAdm. James H. Flatley, Jr., was assigned to write a comprehensive study on the situation. The Aviation Plans Division of CNO drew up plans for the replacement carrier air group training concept.

"In essence, CNO's plan would marry one air group to one carrier. The group would deploy with the carrier and would be shore-based in the vicinity of the carrier between deployments. When next the ship deployed, the same air group would be aboard. Replacement pilots and maintenance crews, either by squadrons or individually, would be trained thoroughly in a replacement group before going to sea.

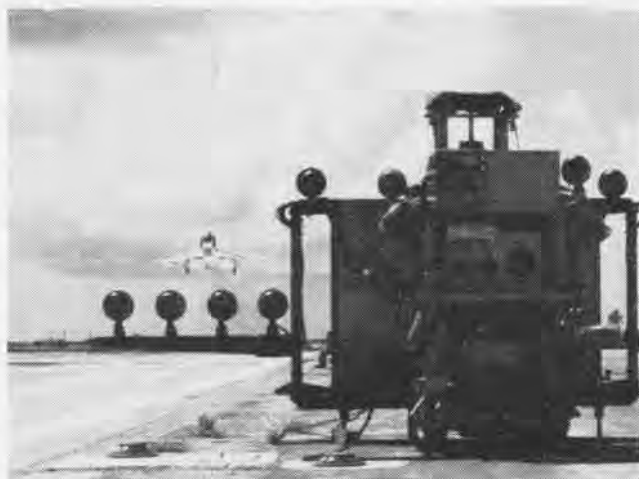
"For every airplane in each of the group's squadrons there would be at least one trained and experienced pilot, ready to carry out the squadron's mission. There would be additional pilots in training who could move up into the 'qualified' category through squadron training to replace those pilots transferred out of the squadron. For example, a fighter squadron with 14 aircraft would have 14 trained pilots and four others in training. Thus the expression 'Level Readiness' was born.

"Adm. H. D. Felt, then Vice Chief of Naval Operations, ordered the plan placed in effect and gave ComNavAirLant and ComFairJax the responsibility for putting it in action. Atlantic Fleet carrier air groups were reduced in number to one per carrier, plus a Replacement Training Group."

(Simultaneously, Replacement Carrier Air Group 12 was placed in service on the West Coast.)

To put Replacement Carrier Air Group Four into operation, several former training units and squadrons were meshed into one organization. VF-174 (present complement 20 F8U-1 *Crusaders*) absorbed the enlisted men of VA-45 and began operations at Cecil Field. VF-101 (18 F3H *Demons*, 23 F4D *Skyrays*, 12 F3D *Skyknights*) absorbed the enlisted men of VF-171 and merged with Fleet All Weather Training Unit to begin operations at Key West. VF-21 (18 F11F *Tigers*, seven F9F-8T's, 12 TV-2's and four T-28's) absorbed Detachment Bravo of FAWTULant to begin operations at Oceana. VA-44 (25 A4D-1's, nine A4D-2's, 10 F9F-8T's, 13 TV-2's and five T-28's) was readied for training duty at NAS JACKSONVILLE.

CVG-4, at that time an operating air group, returned from the Mediterranean and absorbed the men and aircraft



F3H DEMON OF VF-101 MAKES MIRROR APPROACH AT NAS KEY WEST

of Air Task Group 202, which was decommissioned. Cdr. Gordon Brown, ATG-202's commander, became commander of RCVG-4 and served until he was relieved July 3, 1958, by Capt. Dosé. The last squadron to join CVG-4 was VA-42 (AD-6 *Skyraiders*) at NAS OCEANA.

All newly assigned replacement pilots (RP's) were ordered to the RCVG-4 staff at Cecil Field for further assignment for four and a half months to a specific squadron at Oceana, Cecil, Jacksonville or Key West. Simultaneously, all rated men in Group Nine aviation ratings reporting to a sea-going CVG were ordered to one of the RCVG-4 training squadrons.

Capt. Dosé explained what the program would achieve and how CVG-4 went about training RP's and mechanics.

"The main things we will accomplish are improved fleet readiness, longer deployment service from individual pilots, and improved safety records in squadrons using new aircraft.

"Important side issues will be smoother harmony in squadron operations because every pilot will know his machine and how to use it; and we will get a return to the hard core of Naval Aviation as we knew it in World War II wherein an air group or a squadron will have as high as, or higher, a unit pride and *esprit de corps* as the smallest destroyer, minesweeper or other surface ship in the Navy."

He then explained how such a goal is being met by CVG-4.

"Our operations and our success depend on four key words: *Support, Professionalism, Standardization and Technique.*

"From the outset we have had absolute Support in money, machines, personnel and facilities—from CNO, BUAER, BUPERS, COMNAVAIRLANT and COMFAIRJAX.

"As for Professionalism, we were allowed to hand-pick for group and squadron staffs those officers and men who had a lot of *fleet* experience in the aircraft we use.

"To attain Standardization, we called on the professionalism of these experienced officers and men and wrote a syllabus for each type of aircraft. The syllabus is sound. No matter who comes to us for training—a prospective group commander with 4000 flight hours or an ensign straight out of pilot training; a 20-year chief petty officer or a third class mech—each must master the syllabus."

Testimony to the effectiveness of professional training and standardized instruction is shown in statistics. From the start of the program until the first week in November, VF-174 had flown 4396.9 training pilot hours in *Crusaders* without an aircraft loss attributable to a replacement pilot. In the same period, VA-44 flew more than 8000 hours with the same results, VF-101 had only two accidents and VF-21 at Oceana, one accident.

"Our training technique is our highest source of pride," Capt. Dosé continued. "We do not have an 'Instructor-Student' relationship among pilots nor a 'Ship's Company-Transient' relationship among the enlisted men. Rather, the spirit is 'Naval Aviator to Naval Aviator' between instructors and replacement pilots, while replacement enlisted men are worked into the training squadron as members of the squadron with squadron responsibilities."

How do you combat the psychological fears a replacement pilot might have built up from hearing such unfair comments as "The *Crusader* is a high-wing, single-engine ensign-eater?" he was asked.

"That, too, is solved by our combination of Professionalism, Standardization and Technique," he replied. "In the first weeks of his training the RP gets thorough ground schooling in the aircraft he will fly. The lessons include lectures from expert pilots and sessions in the Operational



LCDR. MACKNIGHT, FORMER BLUE ANGEL, CHECKS OUT IN THE F3H

Flight Trainers in which every conceivable emergency is simulated time and time again. Even the peculiar noises the RP will hear in flight are simulated. The end result is that the RP knows, before he flies, just what emergencies could arise and how he would cope with them.

"You might call it a conditioned reflex to emergencies.

"But the preparation does not end there," he continued. "The RP is watched very carefully as he learns to taxi his plane around the strip without taking off. This way he gets the feel of his airplane. Then when he is ready to solo the plane for the first time, his instructor follows him closely in a chase plane and coaches him in climbs, level flight, approaches and landings. Any mistakes made by the RP are brought home to him by the instructor immediately."

The instructor's biggest problem, Capt. Dosé explained, is to teach his students how to handle the power that is built into their aircraft.

"For that reason, we take each successive step very gradually, while stressing and re-stressing the power of the aircraft and how to cope with it."

In CVG-4's standardized program of instruction all pilots begin alike—instrument training at Jacksonville with VA-44 or at Oceana with VF-21, then ground school at a specific squadron, followed by completion of the 80-hour syllabus for their particular type of aircraft.

Since the fighter airplanes are more complicated than the attack planes, VF day fighter pilots must spend a longer time mastering their machines before advancing to the techniques required to carry out their squadron's mission. By the same token, the night-fighting VF pilots spend a good part of their syllabus on instruments. VA pilots, flying the A-4D and AD-6, require less time to master their aircraft and can thus advance more rapidly to weapons delivery. VA pilots attend a three-week weapons delivery course at FAETULANT in Norfolk during the course.

From the day the RP's training begins, he is part of a one-instructor and four-student team. The team remains intact until the four RP's are graduated. Students train, work, talk, eat and relax with their instructors throughout the course, yet the observer found no instances of animosity toward an instructor nor haughtiness toward a student. He realized that under a program of strict standardization



LCDR. J. F. DAVIS, VF-174 SKIPPER, GRADUATES RP RUCHALA



PILOTS PREFLIGHT SKYKNIGHT PRIOR TO NIGHT TRAINING MISSION



FACTORY REP HELPS CVG-4 MECHANICS REPAIR UTILITY PUMP

it must become necessary for the instructor repeatedly to give specific instructions to his charges.

Capt. Dosé was asked whether or not an occasion had ever arisen where a prospective group or squadron commander had become vexed that he was being taught and "told" by an officer very much his junior.

"As a matter of fact," the Captain smiled, "the senior officer RP's are our happiest pilots. One of them told me that this was the first time he had ever been able, when transferring from a shore billet to carrier duty, to concentrate on his training without being encumbered with all the administrative responsibilities of command while he was getting his feet on the ground.

"The most senior RP is receptive because he realizes that his instructor knows more about the aircraft than he does. He knows further that when he gets to his group or squadron, no other pilot in the group can buffalo him."

How would new types of aircraft be introduced to the fleet under the new replacement program, and how would a new attack carrier be provided with its initial group?

"Let's take each problem separately," Capt. Dosé said. "When a new type aircraft is accepted and goes through BIS trials and service tests at Patuxent, CVG-4 will get the next production batch. These planes will be sent to a CVG-4 squadron for the Fleet-Introduction Program.

"The prospective squadron commander will be paired with the training squadron commander, prospective exec with training exec, and prospective plane captains with training squadron plane captains.

"The pilots will learn to fly the planes, the men how to maintain them, and training will be conducted as an integrated squadron before the first squadron goes to sea."

Thus the squadron would be *trained* before deployment.

"Now let's put that hypothetical attack carrier into commission," he said. "We have two methods of solving the problem; normal and crash.

"Under the normal course we would train the squadrons in exactly the same manner we now train replacement squadrons who are making the transition from older aircraft to the new high performance models. By that I mean we would work the squadron's pilots in with our training squadron pilots and the maintenance men in with our men.

"We could man that carrier in four and a half months with a *trained*, proficient group. Until the replacement training program began, it would have taken more than a year to reach operational readiness."

Should circumstances require a "crash" approach, Capt. Dosé said that two existing air groups could be stripped of a third of their pilots and maintenance men and those personnel used to form the new air group, augmented with other pilots from the replacement training program.

"That is another reason we are so anxious to reach 'Level Readiness' at an early date—where our squadrons have *at least* one qualified pilot per aircraft, with several others in varying stages of readiness."

SPECIFIC areas of CVG-4 training were explored next; instrument training at VA-44, enlisted maintenance training and the part played by factory representatives, and the non-training but related collateral duties.

"You will be surprised to learn," said LCdr. William C. Raposa, VA-44's instrument training officer, "that a lot of people—including some Naval Aviators—don't believe single engine jets are allowed to fly under instrument conditions.

"Yet here we can train an input of 10 pilots per week to fly when the soup is so thick we can't see a plane across the strip. Frequently our students make 1.5 hour flights under conditions so bad that the commercial airliners are grounded. We consider it good training conditions when visibility is 1/4-mile and ceilings are 100 feet and GCA is available.

"Our pilots—instructors and RP's—fly an average of 1000 total instrument hours every month and our average instructor logs between 45 and 50 hours in the TV-2 and F9F-8T monthly. The instrument course here (and at Oceana) is of greatest value to the young pilots out of flight training," concluded LCdr. Raposa.

Ens. Ben Newlon, a former AD1, also of VA-44, explained what makes CVG-4's enlisted maintenance training program the envy of longer-established training activities.

"When we hear that a draft of replacement mechs are coming in, we meet them with transportation and take them to their barracks. Our front office gives them information

on the 'human' aspects of the base and our own mechs accept them as a part of our squadron—not as transients.”

The replacement maintenance men (rated AD's, AM's, AE's, AT's, PR's and AO's) get classroom instruction and sessions in the maintenance trainers which affect their rates, then they are integrated into the squadron's maintenance program for on-the-job training.

BEFORE graduation, each replacement mech has watched each piece of equipment repaired and has been given an opportunity to repair each piece of equipment. Factory representatives are always on hand to help squadron or replacement mechs solve unexpected problems.

“The system must be good because we've had nothing but compliments from the squadrons who got our graduates.”

A collateral duty which has been imposed on Air Group Four is the delivery of replacement aircraft to operating air groups in the Mediterranean.

“In the future we may be able to kill two birds with one stone,” said Cdr. C. A. McDougal of VA-44. If replacement pilots are required in the Med at the same time replacement aircraft are needed, we plan to send the pilots directly to the carrier in their new aircraft.”

If an observer, fresh back to his Pentagon desk after a field trip to CVG-4 headquarters, were forced to point out the one feature of the CVG-4 story which most impressed him, he would most certainly attest to the simplicity with which such a complex business is run and to the professional qualifications of its key leaders.

Eight officers in key leadership positions—Capt. Dosé; Cdr. A. G. Russell, his chief staff officer; Cdr. J. B. Cain, CVG-4 Ops and Training; Cdr. W. G. Coulter, CO of VF-21; Capt. G. C. Duncan, CO of VF-101; LCDr. J. F. Davis, CO of VF-174; Cdr. C. A. McDougal, CO of VA-44; and Cdr. R. Linwick, CO of VA-42—share these accomplishments: More than 32,600 total flight hours, including 5703 hours in jets; 2600 carrier landings; heavy combat experience; and responsible positions in squadrons and air groups employing the type aircraft they now use.

The intense training activity is administered in a quiet, matter-of-fact, business-like calm on the part of the CVG-4 staff. How is this possible? Capt. Dosé was asked.

“First of all, we've got a good job to do and we haven't got time to shuffle a great deal of unnecessary paperwork across our desks,” he said. “Secondly, we've got very capable leaders in each of the squadrons.

“And see that sign,” he pointed across his desk. It read, *How Do We Fight?* “That's the question we ask ourselves 24 hours a day. If we concentrate all our actions on the implications of that question, we will never have time to become 'empire builders' or to become overloaded with staff responsibilities.”

Another sign in the Captain's office, a reproduction of Thomas A. Edison's motto, “*There's a Way to do it Better—Find it,*” also seems to be observed and practiced quite diligently. Staff and squadron officers regularly visit other squadrons in the Navy, Marine Corps and Air Force to learn better ways to train replacement pilots.

“Finally,” said Capt. Dosé, “our superiors in Washington and COMNAVAIRLANT are as interested as we are in streamlining operations. They prefer simplicity and action to a lot of administrative overhead and superfluous reports. As a matter of fact, the only 'report' I file is a comprehensive bi-monthly photograph of our status board.”

End of interview; end of visit. What highlights mark the CVG-4 progress report as the program reaches the end of its first year?

1. Trained, confident pilots are reaching the carrier fleet from the replacement pipeline.

2. It has been proved that high-performance aircraft are not high-mortality aircraft. In the words of LCDr. Davis, VF-174 skipper, “We know now that the FSU, highest performance of all operational Navy aircraft, is not accident prone and that with a minimum of 80 hours of sound instruction behind him in his 4½ months here, a Navy pilot can fly this aircraft safely and effectively.”

3. More deployment time per individual pilot will be realized by keeping one air group wed to one carrier.

4. Maintenance crews will report to air groups and squadrons prepared to keep today's performance aircraft ready for immediate action.

5. A return to the “hard core” of Naval Aviation, with well-qualified pilots and maintenance crews, and with good fighting spirit, seems indeed to be just around the corner.



CVG-4'S CAIN, DOSÉ AND (R) RUSSELL WITH FIRST RP GRADS



RADM. GRIFFIN, CAPT. STREAN GREET RP'S FINCH, EILBACHER

O&R IS SEAL OF CRAFTSMANSHIP



THESE COMPLETELY OVERHAULED AND REPAIRED AIRCRAFT ARE WAITING FOR DELIVERY TO UNITS TO WHICH THEY ARE ASSIGNED

TODAY the insignia, "Overhauled by O&R, Pensacola," is a symbol of O&R's workmanship that flies the globe. It means that the airplane bearing this insignia has been given a new lease on life, is completely safe, and will satisfy the most exacting pilot in performing his mission anywhere in the world.

The Pensacola Overhaul and Repair Department is the first of nine such industrial establishments strategically situated in the continental United States to support the Navy Integrated Aeronautic Program.

O&R is a highly flexible, though complex, industrial activity. It could not be otherwise, since it must be ready to rework new and out-of-production aircraft, aircraft engines, accessories

and components as well as incidental operations, such as the manufacture of aircraft parts, assemblies, tools and equipment. There simply is no stopping the constant flow of work through the shops.

The Overhaul and Repair Department was forty years old on December 1. On that day in 1919, it was created by the Navy Department by combining under the title of the Assembly and Repair Department, the then existing Machinery and Hull Divisions, which had only a few hundred employees.

The name, Assembly and Repair Department, was finally changed to Overhaul and Repair Department because it described more accurately the work it was required to do.

O&R Pensacola requires approxi-

mately 1,000,000 square feet of floor space in numerous buildings containing 200 shop units. Its present personnel complement includes about 4000 civilians.

Aircraft overhaul amounts to a complete disassembly of all aircraft, aircraft assemblies and accessories. It includes a thorough examination after disassembly to determine which repairs are economically feasible. When feasible, components are repaired; otherwise, they are replaced. After the entire job is done, the result is the assembly of a new and completely overhauled plane ready for action.

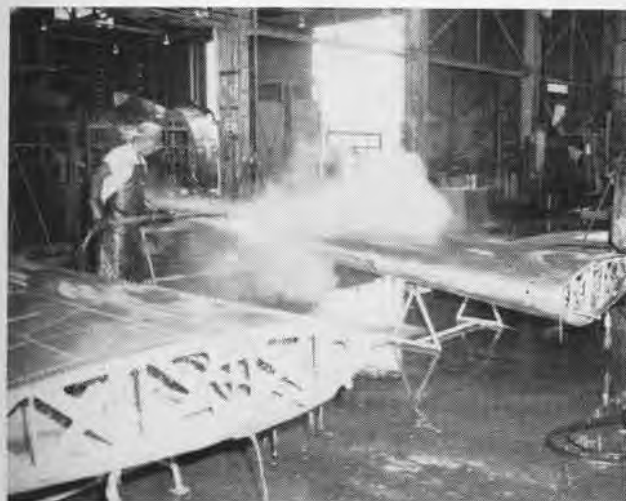
O&R Officer at Pensacola is Capt. C. W. S. Stirling. He and his assistant, Cdr. Jerry F. Daniels, Jr., direct the efforts of the entire facility.



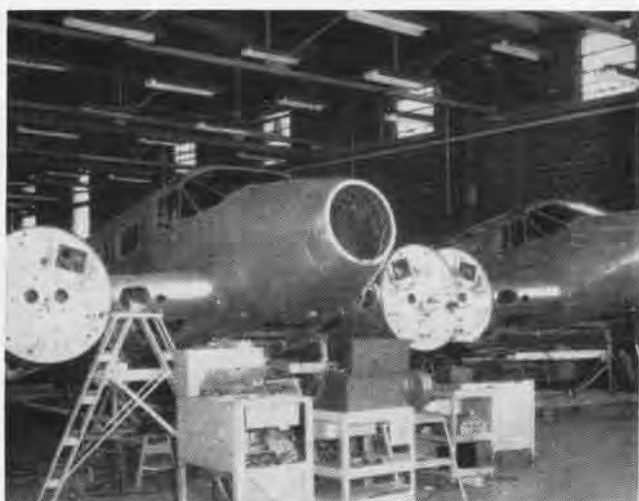
AN S2F TRACKER GETS THOROUGH PRELIMINARY EXAMINATION



THE PROCESS OF DISMANTLING PLANE PROCEEDS EFFICIENTLY



ALL PAINT AND PRIMER ARE REMOVED FROM THE PLANE'S PARTS



FUSELAGE OVERHAUL SECTION MOUNTS WORK ON MOVABLE DOLLIES



WINGS, OTHER SURFACES ARE TESTED FOR STRUCTURAL STRENGTH



WORN PARTS ARE REPAIRED, NEW ONES MADE, IN MACHINE SHOP



WORKMEN INSTALL AND CHECK ONE OF THE ELECTRICAL SYSTEMS



LANDING GEAR IS DROP-CHECKED BEFORE THE PLANE IS RELEASED

TAPE KEEPS TRACK OF MEN

A MAGNETIC tape computer has taken over the job of tracking men in the Pacific Fleet—about 200,000 in round numbers. The IBM 650 Electronic Data Processing Machine has been installed at the Pacific Fleet Personnel Accounting Machine Installation, NAS NORTH ISLAND. LCdr. F. J. Rodstrum is Officer-in-Charge of the accounting facility. It is the first of three data processing installations to go into operation furnishing BuPers with manpower figures. VAdm. A. M. Pride, Commander Naval Air Force, Pacific Fleet, officiated at the opening ceremonies. The Norfolk and Pensacola units, which will handle Atlantic Fleet and continental shore activities personnel respectively, are scheduled to be in business early this year.

The tape computer allows the unit to give personal attention to every man in the fleet, by handling large volumes of information with lightning speed. An inch of tape, similar to that used in home recorders, can store 200 bits of information. For example, an individual's record containing 945 pieces of knowledge can be recorded on less than $4\frac{3}{4}$ inches and can be transcribed in less than $1/15$ th of a second.

Data furnished to the accounting office is supplied by each Navy man. John Airman in his deployed squadron will periodically complete a card bring-

ing his record up-to-date. Among other things, he will be asked to indicate circumstances pertinent to his next assignment, especially family considerations. Transferred to punch cards, this word will be relayed via transceiver hook-up to San Diego where it will be fed into the computer and become part of his individual file.

LCdr. Rodstrum said: "We expect to make 100,000 changes a month on the tape, and complete 15,000 or more transfers. The machine gives us the ability to give the men more personal attention. . . . Before, more than 40 separate, disconnected activities controlled the men in the Pacific Fleet. So many fingers in the pie created problems. Men were ordered from place to place by rate only, sometimes spending days and weeks at a RecSta.

"With the new equipment," he continued, "the men are now ordered by name, and before they leave their present duty stations they know where they are going and how long it will take them to get there. But it's just a machine," he emphasized. "Transfer of personnel in the fleet is still done by the regular assignment officers."

● First carrier take-off in the U. S. Navy was made by LCdr. V. C. Griffin in a Vought VE-7SF from the USS *Langley* on Oct. 17, 1922.

● Fuel alone carried by a modern jet bomber weighs more than a fully loaded B-17 bomber.

Missile Frigates Planned Four Shipbuilding Firms Involved

Four contracts totalling \$182,493, 105 for the construction of seven guided missile frigates (DLG) have been announced. Four of these frigates are part of the Navy's Fiscal 1959 program, and the other three are ships remaining from the Fiscal 1958 program.

These guided missile frigates are of new design. Their missile armament will consist of twin *Terrier* missile launchers installed fore and aft. They also carry the latest antisubmarine weapons.

The ships will have an over all length of 535 feet, beam of 53 feet, and will be powered by steam turbines geared to twin shafts. They will be used primarily as anti-aircraft and anti-submarine defense for high speed task forces, but are also designed to operate independently and in support of amphibious operations.

Bath Iron Works, Bath, Maine, will construct DLG-16, the lead ship of the class, DLG-17 and DLG-18. The New York Shipbuilding Corporation, Camden, N. J., will construct DLG-19 and DLG-20.

On the West Coast, the Puget Sound Bridge and Dredging Company, Seattle, Wash., will construct DLG-21, and the Todd Shipyards Corporation, San Pedro, California, will build DLG-22. All of the four frigate contracts were awarded on a fixed price basis.

The awards further the Navy policy of obtaining strategic dispersal of naval ship construction and of maintaining capabilities on the West Coast for construction of major combatant ships.

P2V's Get New Equipment Permits Long Range Sub Detection

About 350 P2V *Neptune* patrol planes will be equipped with a "new concept" submarine detection system which will permit earlier detection of enemy submarines at greater ranges than ever before.

Two *Neptune* models, the P2V-5 and P2V-7, are scheduled to get the new equipment, beginning this month. Models of each are now flying with prototype installations.

Delivery of the first planes to operating squadrons began in December. The same system is being installed in new *Neptunes* on the production line.



A FLOATING CITY, the USS *Lexington*, CVA-16, is a spectacular sight at night. This picture was taken when the carrier was in drydock at Yokosuka, Japan, Naval Station. The contrast of bright lights and night shadows gives a dramatic impression of the carrier, now with the 7th Fleet.

DCNO (AIR) BRIEFS NAVY BOOSTERS

THE OCCASION was the semi-annual national meeting of the Navy League and Advisory Council on Naval Affairs, which was held last Fall in Miami, Florida. The final business event was devoted to a symposium called, *The Threat to Peace and How to Meet It*.

On hand to present the problem and some solutions were: Adm. Jerauld Wright, Commander-in-Chief Atlantic Fleet and Supreme Allied Commander, Atlantic, who discussed *The Importance of the Atlantic*; VAdm. William G. Cooper, Commander Anti-Submarine Defense Force, Atlantic Fleet, told of the present set-up and future plans for the ASW program; VAdm. Robert Goldthwaite, Chief of Naval Air Training, emphasized the importance of Moral Leadership in today's Navy; and BGen. Samuel R. Shaw, Director, Marine Corps Development Center, Quantico, dealt with *The Marine Corps and Sea Power*.

VAdm. Robert B. Pirie, Deputy Chief of Navy Operations (Air), started the program with a run-down on Naval Aviation.

"Missiles and aircraft are not competitors," he said. "They are partners that complement each other. We are convinced that the missile must be the agent of destruction either offensively or defensively. The aircraft and ships are the platforms from which missiles are launched.

"For task force defense we are currently evaluating two aircraft that are in the Mach Two, very high altitude category: the McDonnell F4H, a two-place twin-jet, which is a typical missile platform; and the Chance Vought F8U-3, a single-jet, single-place plane which also uses air-to-air missiles.

"In air defense of the task force, the fighters must have guidance in the air as well as from the surface. For this mission we now have in production the Grumman WF-2, a specialized version of the S2F Tracker. For the future we are looking to the WF-3."

He continued, "A new carrier attack aircraft is the North American A3J supersonic twin-jet. The *Vigilante* is an example of a new trend. It performs the mission we want with all the latest equipment, speed and altitude. Yet it is smaller and lighter than its predecessor.



NAVY LEAGUE PRESIDENT, JOHN J. BERGEN, TALKS WITH VADM. PIRIE IN MIAMI, FLA.

"There is also a new all-weather, low-level subsonic attack plane in the offing, the A2F-1, which will be especially fitted for the attack mission in any future limited war situation.

"In the future, airplanes must assume a major part of the burden of anti-submarine warfare. There is so much water in the world for submarines to hide in that we know of no other means of scouring these millions of square miles rapidly enough.

"A new aircraft that will be big enough to carry all the new detection and kill gear and provide enough space to reduce crew fatigue is the successor of the present P2V—the Lockheed P3V. It's a military version of the *Electra* turbo-prop commercial passenger plane with greater speed and endurance, and should be operational in 1961 or 1962. By modifying an 'off the shelf' item, we save greatly in developmental costs."

The missile and helicopter programs were outlined and then Adm. Pirie went on to his "favorite subject—the aircraft carrier." He explained the trend toward larger and larger carriers which began just after WW II. Each bigger and hotter aircraft required more landing space and more storage space, until carriers the size of the *Forrestal* class became necessary. Now that the trend has been checked, the carrier can handle any aircraft we will

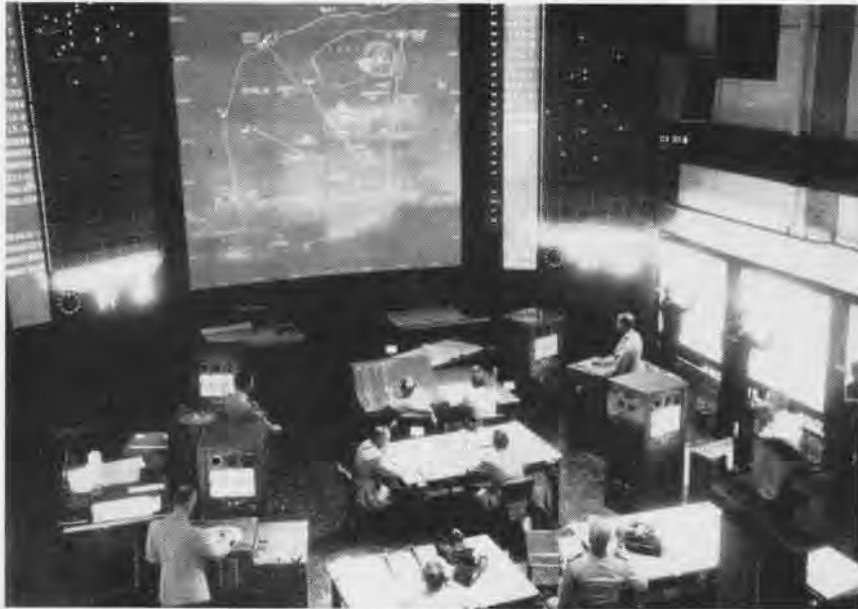
require for a very long time to come.

"But," he explained, "these new planes are fuel hogs. The *Forrestal*-class can carry only so much aircraft fuel because it has to devote so much of its space for its own fuel. With the nuclear powered *Enterprise* we go into a new era. Most important, and I stress this above all other reasons, the nuclear carrier can operate for long periods of time at high sustained speeds. This is the best defense against the nuclear submarine.

"I know that you are sometimes confronted with questions regarding the vulnerability of the carrier task force. The concept of the WW II task force is as dead as a Dodo bird. Today's force is spread out over an area as big as Pennsylvania. If a missile saturation attack were tried, one could draw the parallel of trying to hit a flight of ducks at two hundred feet with a load of buckshot—possible but highly unlikely."

He concluded: "I have tried to give you some pictures of what we can expect in the future of Naval Aviation. Its role in limited war and in anti-submarine actions is vital in guaranteeing the freedom of the seas. Yet it is ready with the Sunday punch with retaliatory nuclear attacks from its highly mobile bases if an all-out war situation should develop."

FABULOUS 'WAR GAME' READY



A WAR GAME IN PROGRESS IS SHOWN ON THE 15-FOOT PLOT SCREEN IN THE MASTER ROOM

WITH MILES of wire and thousands of tubes, the new installation at the Naval War College is an electronic engineer's dream—big, complicated and extraordinary. It is one answer to the immediate problem of training command officers by having them engage in war games when the actual equipment is exorbitantly expensive.

High cost of new weapons and weapons systems, which would have to be used in actual fleet exercises, has limited such advanced training for officers on a large scale. The Navy Electronic Warfare Simulator (NEWS) at Newport, which meets the need for intensive training in modern warfare, will probably revolutionize completely the art of war gaming. Certainly it inaugurates an era in command training.

Housed in a building one block long and three stories high, the \$7,250,000 installation provides officers, who have from 10 to 20 years of naval service, with realistic combat command problems in terms of the latest naval methods.

Years of painstaking work have produced the Simulator. In early 1945, the University of California delivered to the Training Command Pacific a Combat Information Center trainer.

The Bureau of Ships became interested in the CIC trainer in terms of the value of a similar device which might be used to prepare officers for high command. Design it, they theorized, to meet problems of a tactical nature, and it might be just what the Naval War College needed. Representatives of that institution, on viewing a demonstration of the trainer, were inclined to agree.

For the next five years, studies were made in order to establish a basis for firm functional requirements. In 1950, the Navy Electronics Laboratory, San Diego, was made responsible for developing and constructing the Problem Generator and Display System, the first name for NEWS.

By 1953, the specifications were complete and the funds allocated. The Industrial Manager, First Naval District, commenced the installation in 1954, and by 1957 certain parts of the installation were in use. In October 1958, the Naval War College assumed full responsibility for the installation.

It is a gigantic enterprise and there are figures to prove it. When NEWS, which occupies about 35,000 square feet of floor space, is in full operation, the equipment electrical load is about 250,000 volt-amperes with an addi-

tional 67,500 volt-amperes for lighting. There are more than 250,000 terminations interconnected by 2500 miles of wire.

The installation uses more than 10,000 tubes and has a complete air conditioning and fire protection system. NEL devoted about 100 man-years to the design, development, fabrication and installation checks of the unique equipment. Employees of the Boston Naval Shipyard spent about 30 man-years in the work of installing the delivered equipment.

In the completed system, there are a total of 2889 pieces of nomenclature equipment of 263 types. The specifications, design and development of approximately 85% of these equipments were engineered by NEL. The remainder were either stock items, obtained by direct purchase from commercial



AN ELECTRONIC MECHANISM IS ADJUSTED

sources, or items developed by contractors.

"War Game," as the Naval War College defines it, is "a generic term describing the means for simulating the play of systematic strategic or tactical operations of opposing forces. It may include two-sided Board Maneuvers, Chart Maneuvers, Electronic Maneuver Board Games, Tactical War Games or Strategic War Games.

War gaming became very popular in this country right after WW I. Both Board and Chart Maneuvers occupied a prominent place in the Naval War Col-

lege curriculum in the years between WW I and WW II. But after that time, these types of maneuvers proved unadaptable to the new concepts of naval operations.

A new method of war game was required to permit the employment of more modern and diverse forces operating over vast areas for long periods of time. The operations problem war game was therefore instituted.

When the specification for the electronic trainer NEWS was laid down, these technical objects were announced: It was to be a trainer that would "provide naval war games equipment which will simulate the capabilities and limitations of various types of maneuverable weapons systems (forces) in such a manner as to demonstrate to both players and umpires the command problems involved in the employment of these weapons systems in war."

It was a large order, an important one, and it was filled by NEWS whereby a war game can be played with great electronic equipments—the conflict of the computers.

The physical plans of NEWS consists of equipment rooms, control rooms, an umpire area and a series of command centers. The facilities introduce a high degree of realism into the characteristics and control of forces, operating in any area of the globe, and into the simulation of modern tactics and weaponry.

Umpires are located in an auditorium physically separated from the command centers. Each umpire is an officer with great professional experience in the particular type of operation he umpires.

A 15-FOOT plexiglass master plot screen provides a composite picture of the simulated forces, their maneuvers and interactions. Problems can be conducted at unity time (the time it would actually require in a real battle) or speeded up to twice or four times unity time while operating in geographic areas of either 4000, 1000, 400 or 40 miles on a side. Speeds up to 5000 knots may be used for forces operating in the 1000 or 4000 mile area, and up to 20,000 knots in the 4000-mile area.

The kind of forces that may operate is extremely flexible. They may be either an individual ship or aircraft, a task force, a shore installation, an airfield complex, or any maneuverable force capable of inflicting or sustaining damage. One such image may exemplify an Attack Striking Force of carriers, cruisers and destroyers, programmed with realistic characteristics of fire power and mobility, or, if appropriate, the Striking Force may be represented by individual units up to 24 forces.

Umpires in their area can monitor and influence the progress of a war game. They view the Master Plot Screen and observe the maneuvers of all forces, and they can also project themselves into any Command Center and see its realistic radar picture. They are free to monitor the communications and introduce intelligence to the force commanders, and can control the characteristics of all forces and modify the output of the damage computer as appropriate.

At the same time, in the 20 com-

mand centers, commanders and their staffs direct their "forces." Their rooms simulate a flag plot, unit command CIC, air command center or command tactical center. In addition to simulated radio, intercom, teletype and navigational equipment, the centers provide radar presentations and an electronically controlled automatic CIC type of target information. Based upon the intelligence received, each commander and his staff controls their forces. With the assignment of four type weapons per force and the control of weapon fire, they can simulate weapon fire and inflict damage. Thus they can test the soundness of their plans as they would under combat conditions.

Rapid calculation of results enables the battle action to progress at any rate of speed as well as to hold at any point during the course of action to permit detailed analysis at any moment during the battle. Using the elements of mobility firepower and intelligence gives officers experience and skill in modern warfare.

As examples of the current utilization of NEWS, a fleet command recently conducted an air defense problem on the simulator, and the College has scheduled 12 operation problems for the students during the present academic year.

In addition to providing officers with a reproduction of a battle situation, NEWS may also provide a tool to explore and evaluate the effectiveness of new tactics in naval warfare, not only in the Naval War College but also in Fleet operating forces.

OFFICER AND ENLISTED MEN IN ONE OF THE 20 COMMAND CENTERS



TWO TECHNICIANS OPERATE THE MASTER CONTROL BOARD OF NEWS





ON THE LINE IN '59

A mighty man-of-war, the Forrestal is a symbol of James V. Forrestal's urgent hope, 'Power for Peace.' The big attack carrier is now serving in the Mediterranean with the Sixth Fleet to support American forces in Europe and carry out American policy and diplomacy. During 1958, the Forrestal played many roles: provided training for Air Groups Three and Seven, participated in training exercises and relieved her sister ship, the Saratoga, as the major striking unit in the Sixth Fleet. CVA-59 is 'home base' for Air Group Ten which flies the Navy's hard-hitting operational aircraft F8U, F4D, A4D, and A3D.





FORRESTAL'S CRUSADERS ARE POWERFUL PART OF 'SUNDAY PUNCH'



RADM. C. D. GRIFFIN, COMCARDIV FOUR, CONFERS WITH OFFICERS



VA-12 PILOTS FLY THEIR A4D-1 SKYHAWKS OVER THE FORRESTAL



V-4 DIVISION CREWMEN REFUEL ONE OF THE A4D'S ABOARD CVA-59



'RED' STONER, AD1, TAKES EASILY TO YOUNG ORPHAN VISITORS



FORRESTAL MEN WERE VISITORS IN ROME, 'THE ETERNAL CITY'

Marine Detachment to Boxer Unit of 4 Officers, 100 Enlisted

A Marine Aviation Detachment of four officers and 100 enlisted Marines has been assigned to the USS *Boxer* to provide supply, maintenance and flight deck control to Marine helicopter squadrons and troops to be assigned to the carrier.

The *Boxer*, an Amphibious Assault Ship, CVS-21, is part of the new highly mobile Amphibious Squadron in the Atlantic Fleet's Amphibious Force. The *Boxer* will spearhead the squadron.

RP's Train at Gitmo Bay Detachment Alfa Returns to Jax

The first group of *Fledgling Hornets* of VA-44 has returned from Guantanamo after completing five days of intensive training.

Bombing Detachment Alfa consisted of six replacement pilots, two instructors and 25 enlisted men.

Purpose of training at Guantanamo Bay is to fly as many bombing hops as possible, avoiding winter weather.

Compounded Coincidence Some People Just Lucky That Way

The fickle phenomenon of coincidence lightly brushed Ens. John M. Davidson recently and then turned about to tag him—but good! And, of



LT. SMITH, DAVIDSON WITH CAPT. SMITH

course, it all happened deep down in Texas.

Scheduled for his initial carquals, Ens. Davidson drew his flight gear. Enroute to check his aircraft assignment he noticed the Mac West bore the number "52."

The coincidence shaped up slightly when he and his instructor, Lt. H. O. Smith were assigned 52F #52.

It became king-sized an hour later when the NAS CORPUS CHRISTI aviator made a perfect approach to the USS *Antietam*, caught a wire and was informed he had logged the 52,000th landing aboard the carrier.

Aside from the memories of a 4.0 first landing, congrats from the ship's C.O. Capt. James A. Smith, popping flash bulbs and a 25 (try it backwards) pound cake, Ens. Davidson should harbor an especial regard for good old 52.

VA-176 Fly Jet Furies No Longer 'Props Only' Pilots

The awe and mystery surrounding the jet pilot has been dispelled for the *Thunderbolts* of VA-176. Formerly labeled "props only," this squadron of AD drivers leaped in the FJ-3's of VF-173 recently to observe first hand how the other half lives. For 16 of the



VF-173 PILOT (SEATED) EXPLAINS FURY

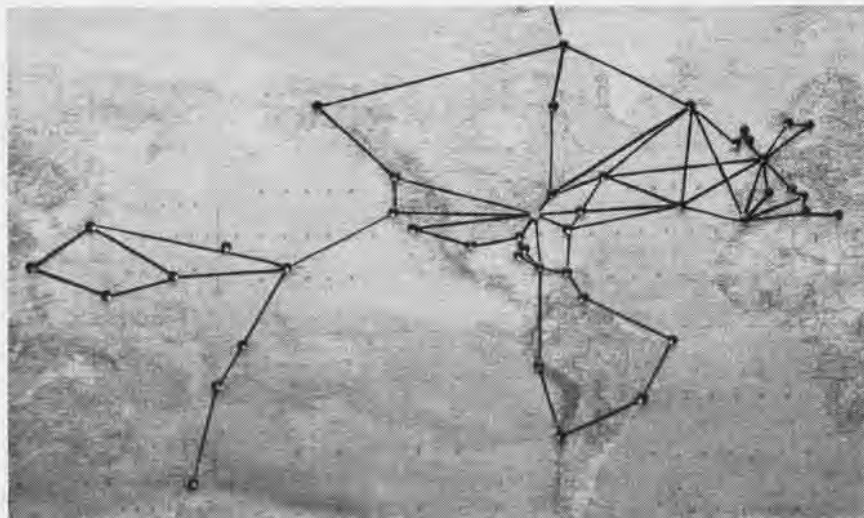
26 assigned pilots, it was their first jet flight.

For a week the *Thunderbolts* set aside their box lunches and rubber doughnuts, forgot about MAG switches and torque; lived and breathed TPT, thrust, irreversible control systems and angle of attack indicators. Checkouts in the *Fury* were accomplished without incident.

Indoctrination into *Furies* was conducted with safety as the prime consideration at all times. All pilots completed the ejection seat and low pressure chamber checkouts prior to flight. Ground training consisted of a review of flight characteristics, emergency procedures, aircraft systems, fuel management, and high altitude flight procedures and was given by the seasoned pilots of VF-173. When the *Thunderbolts* taxied out they knew the *Fury* and what to expect nearly as well as they knew their familiar *Skyraider*.

During the indoctrination flights the new jet pilots climbed to 35,000 feet while practicing turns and reversals. After a few aerobatics at high altitude, the *Thunderbolts* descended to 15,000 feet and familiarized themselves with stalls and slow flight characteristics. Each flight then proceeded into the landing pattern and made four to eight touch-and-go's prior to the final landing.

VA-176 and VF-173 are based ashore at Naval Air Station, Jacksonville.



THIS MAP INDICATES the routes flown by Air Transport Squadron 22 (MATS) during its three-year accident-free period and clearly illustrates the squadron motto—Omni Tempore Ubivi (Anytime—Anywhere). The line at the top of the map indicates a non-stop round trip to the geographic North Pole. The squadron received for its notable record a safety citation from VAdm. W. L. Rees, Commander Naval Air Force, Atlantic. Capt. N. C. Porter is VR-22 C.O.

BAIL-OUT AND EJECTION SENSE



APPROPRIATE sub-titles for the latest in the Sense Pamphlet series might be *Set for the Second for Separation* or *Poised for Pop-Out*. However, NAVAER 00-80Q-55, issued by the Aviation Training Division of the Office of the Chief of Naval Operations, is officially known as *Bail-Out and Ejection Sense* and, as usual, it makes awfully good reading.

As the very first paragraph indicates, it's written in language you just can't argue with: "If that instant comes when you must remove yourself from an airplane between here and there in the sky, you cram into a sudden spurt of action the results of a good many hours of preparation. That *Second for Separation* is no time for debate or a quick refresher course in survival." The author covers in turn how to go, when to go; proper chute and seat etiquette on the way down; and the safe touch on land or water.

Emphasis is placed on those elements in the *Handbook* that bear endless repeating. Under the "how's" comes the recommendation that "the best available printed word on the way out is to be found on the pages with the striking red edges." But it's not enough to study the *Handbook*, hash it over with one and all because "preparation and practice are the prime ingredients for successful pop-outs." Be sure you know your equipment, adjust all gear properly and are familiar with the procedures for each type of aircraft.

The "when's" stress the importance of getting the Triple A's of Naval Aviation—Airspeed, Altitude and Attitude—to work for you and not agin' you, if at all possible. It's demonstrated—in an admittedly extreme example—that it takes a mere two seconds to



free-fall to the ground from a plane at an airspeed of 525 knots at 1000 feet, in a 45-degree dive. (This isn't enough.) Your chances become much better if any one of the factors can be controlled in your favor. Altitude is particularly important because altitude is *time*.

We come next to the "never-never's" of jumping. They're simple, but they make sense. "Never stop to worry about what anybody will say to you later. The second-guesser isn't up there in trouble. You are." And again,

"Never start imagining things can go wrong."

Briefs on Bail-Out and *Tips on the Out-Shoot* tidily handle the actual jump sequence. There are also all sorts of helpful hints on how to adjust your harness, once your chute opens, so that you'll be as comfortable as possible on the way down, and how to control to some extent where you'll land.

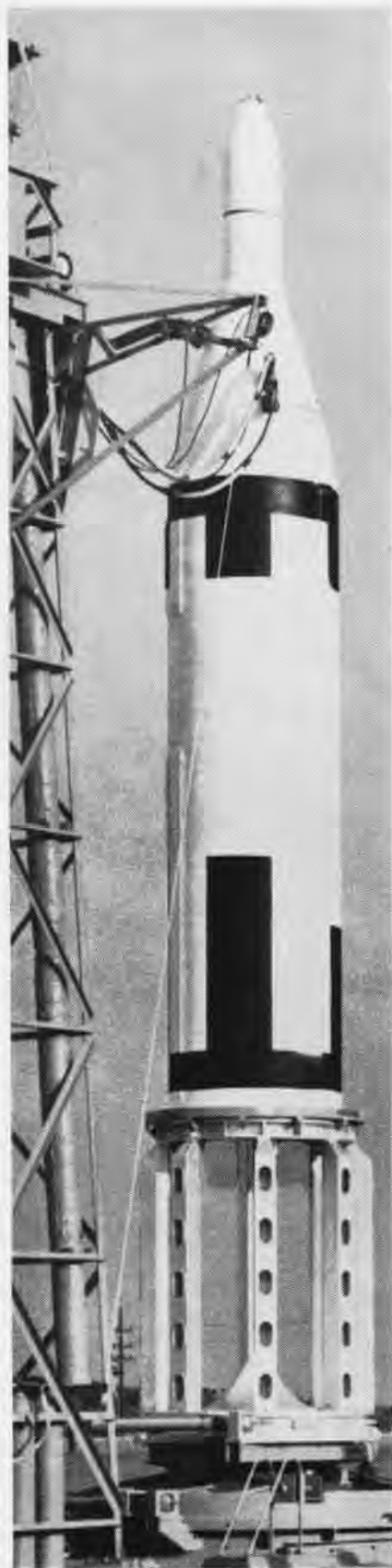
Comes the moment of touchdown, face the direction of your drift! It's not only wise; it's the "cardinal principle of successful 'chuting." Ground and water landings are both covered, with some words on survival procedures thrown in.

"And there, as they say in Hollywood, is the *Bail-Out and Ejection Story*. You've heard it all before, with variations; but also hear this: it is one tale you should never let go stale . . . Bring to the *Second for Separation* a sharp, alert, knowledgeable approach, and you'll have it made."

The style of George Foster's writing is not conducive to putting the booklet down, and the Bob Osborne drawings really get across the ideas. Any way you look at it, it's bound to hit home and set you thinking hard.



WHAT MAKES MISSILES TICK



IF YOUR next promotion depended on accurate answers to the following questions, how would you fare?

What is the basic difference between a guided missile and a ballistic missile? What are the Navy's missile categories? Which ones are operational, just over the horizon, or in reserve status? What propels the various Navy missiles to their targets? What guides them? Do you know the difference between a "beam rider," a "heat seeker," and an "inertially guided" missile?

Missile scientists will doubtless cringe at the oversimplifications used here, but an effort has been made to keep the story basic. A number of good references are available for the reader who wishes to dig deeper; among them, *Guidance, the Principles of Guided Missile Design*, by Arthur S. Lecke.

Navy missiles fit into five basic categories: Surface-to-Air (or Sea-to-Air)—SAM; Air-to-Air—AAM; Air-to-Surface (or Air-to-Sea)—ASM; Surface-to-Surface (or Sea-to-Surface)—SSM; and Fleet Ballistic Missile—FBM.

Sea-to-Air Missiles (SAM)— Terrier, Talos and Tartar

Terrier is an all-weather guided missile whose range is approximately 10 miles. It can be fired from cruisers, aircraft carriers, destroyers or frigates against enemy aircraft. It is designed to intercept enemy aircraft at longer range and higher altitudes than conventional antiaircraft guns and can be used for beachhead operations by the Marines.

Terrier is launched by a solid rocket booster which separates from the missile in flight, at which time a solid rocket sustainer is ignited to maintain the missile's speed.

The same radar beam which the

parent ship uses to track the target serves as a highway for *Terrier* to follow as it intercepts the target. Hence it is called a beam rider.

Equipment built into *Terrier* can determine when the missile is in the center of the beam, or, if it is getting off course, how much error is involved. Electronic circuits which determine the error also induce control changes which return the missile to its proper course.

The 15-foot, 3000-pound missile can be selected, loaded, trained, elevated and fired automatically, all within seconds. It is now operational on USS *Boston*, USS *Canberra* and USS *Gyatt*.

Talos, about 20-feet long, weighing 3000-pounds and measuring 30-inches in diameter, has many times the range of *Terrier* (more than 65 miles) and it has nuclear capability to destroy enemy aircraft and missiles.

Powered by a ramjet engine, it reaches twice the speed of sound within six seconds after launching. Its takeoff is aided by a solid rocket booster which is jettisoned when the missile reaches cruising speed.

Talos employs a two-stage guidance system. First it rides a radar beam to the vicinity of its target, then shifts automatically to a homing (radar) seeker. Thereafter the missile flies under control of the seeker which gets its information from the target itself. Thus *Talos* is a combination of a beam rider and a seeker.

Whatever course or speed changes the target makes, computers inside *Talos* tell its control surfaces what measures to take to keep on the target's tail until contact is made. When in lethal range of the target, a proximity fuse detonates the warhead.

Talos can destroy supersonic and subsonic targets and will be effective against enemy planes employing air to



TERRIER IS LAUNCHED FROM USS GYATT



TALOS POISED FOR TEST AT WHITE SANDS



PETREL SUSPENDED FROM WINGS OF A P2V

surface missiles. It can also be used against ships and shore-bombardment targets.

Talos is in service aboard USS *Galveston* and will be used aboard other cruisers, including USS *Long Beach*, first nuclear cruiser.

Tartar, newest and smallest of the Sea-to-Air missiles, has been called a blood brother of the improved *Terrier*. It is designed for use on ships as small as destroyers and as secondary armament for cruisers. It has a solid propellant, dual thrust rocket power plant and its guidance is similar to that of *Talos*.

Air-to-Air Missiles (AAM)— *Sidewinder, Sparrow I, Sparrow III, Eagle*

Sidewinder, the primary guided missile weapon used by aircraft squadrons in the 6th and 7th Fleets, is a heat seeker. When launched from a fighter aircraft it spurts forward under the power of a solid propellant rocket and homes on heat generated by the target aircraft. It is a boost-glide missile.

Sidewinder flies at supersonic speeds and can change its course to follow and overtake its target at altitudes higher than 50,000 feet. It is nine feet long and weighs about 155 pounds.

Addressing the Business Magazine Editors in Washington, D. C., VAdm. Robert B. Pirie, DCNO(Air) declared: "*Sidewinder* has already made a name for itself in the Formosa Straits when used by Republic of China fighters against Communist fighters."

Sparrow I is a supersonic beam rider which has been replaced by *Sparrow III*. Twelve feet long, weighing 300 pounds, and employing a solid propellant rocket motor, *Sparrow I* can be fired from Navy fighters either singly or in rapid sequence salvos, to be guided to its target by radar.

Sparrow III has increased range, higher speed, greater accuracy and all-weather capability. It is guided to its target by a radar seeker.

Its principal asset, besides speed and range, is its ability to make an all-weather attack against an aircraft or missile from all directions, including head-on. It does so at speeds greater than twice the speed of sound and at altitudes greater than 50,000 feet, even though the target may attempt to evade the attack by maneuvering.

Sparrow III is 12 feet long and weighs about 350 pounds. Navy fighter planes can carry two to four. *Sparrow III* will be the primary weapon for many present and all future all-

weather fighter aircraft in the Fleet.

Eagle is a long-range air-to-air guided missile under early development. No details or photographs have been released.

Air-to-Surface Missiles (ASM)— *Petrel, Bullpup and Corvus*

Petrel is a turbojet-powered missile, designed to be launched from an aircraft, fly to a point near the target by radar seeker guidance, then drop a torpedo which would attack either a surface or submerged target.

Production has been completed and *Petrel* has been transferred to the Reserve Fleet.

Bullpup is an extremely accurate weapon designed for close air support and interdiction ("destroy 'em before they can take off") missions. It is powered by a solid rocket propellant and guided to its target by a radio command system. *Bullpup* is extremely reliable against such specific targets as pillboxes, tanks, truck convoys, bridges and railroads.

On a recent test a Navy pilot who launched the *Bullpup* on his first try hit a four-inch square target two miles away.

Bullpup has greater than 15,000 feet slant range and is a supersonic missile.

SPARROW III IS POSITIONED ON FIGHTER



SIDEWINDER ABOARD F9F TEST AIRCRAFT



BULLPUP BEING READIED AT POINT MUGU





REGULUS I IS OPERATIONAL IN THE FLEET

Eleven feet long and weighing 540 pounds, *Bullpup* is relatively inexpensive, accurate and simple in design. Its movable control surfaces are the Canard type (forward on the airframe) and it has a self-contained navigational system.

Using *Bullpup's* optical track radio command guidance system, the pilot's vision serves the purpose of a radar beam. He keeps both the target and the missile in sight and, when the missile gets off course for any reason, he directs it back on course by a radio link "command." Instruments inside the *Bullpup* respond to a radio pulse command.

Corvus is a supersonic missile which can be launched by carrier-based aircraft. It is propelled by a liquid fuel rocket plant. Its guidance system remains classified.

Corvus was designed for use in penetrating heavily defended areas, also for use against enemy surface ships.

REGULUS II, TEST VERSION, IN FLIGHT



Sea-to-Sea Missiles (SSM)

Regulus I, Regulus II and Subroc, all guided, and Polaris, a Fleet Ballistic Missile

Regulus I has a turbojet engine which can propel the 30-foot-long missile in excess of 500 miles at approximately the speed of sound. It is presently available for use in submarines, cruisers, carriers, or it can be fired from shore stations. It can be launched either by JATO rockets or from the catapult of an aircraft carrier. It can carry a nuclear payload.

Regulus I is guided to its target by an electronic brain. It can be controlled from the launching ship or from an aircraft in flight. As in the case of smaller missiles already explained, *Regulus I* has built-in instruments which receive instructions and relay those instructions to its control surfaces to keep on course.

It was the first operational attack missile to join the fleet. Final deliveries were made in 1958.

Regulus II is a great improvement over its predecessor. It is supersonic (actually rated at Mach Two), is powered by a more powerful turbojet engine with afterburner, and uses a rocket booster for takeoff. In addition to greater speed, it can go higher and farther than *Regulus I*.

Fifty-seven feet long, with a 20-foot wing span, *Regulus II* was designed to be launched from submarines and cruisers.

Its guidance system is inertial, a principle under which built-in gyros, a computer, an autopilot and new navigational devices work together to keep the missile on course. While *Regulus II* is capable of self-navigation, its control can be taken over by a chase plane or a surface unit for training operations.

Unlike ballistic missiles which follow a given path to their target once they are fired, *Regulus II* can be guided to its target in a variety of ways. For example, it may approach the target at 60,000 feet altitude and power dive to impact from a point directly overhead. Or, it may approach from 5000 feet altitude, climb to 50,000 feet a hundred miles from the target, and dive to impact.

Subroc is an advanced tactical missile designed to be launched from submarines. It is now in an early developmental stage. It will be employed as

an anti-submarine or anti-surface ship weapon. It will have a much greater range than currently available submarine attack weapons and will be capable of carrying a nuclear warhead.

Subroc can be fired from above or below the surface.

The *Subroc* system can detect a submarine at long range, compute its course and speed, and fire the missile. The missile is propelled through the air by a powerful rocket; the spent rocket drops away and the warhead continues on to the target. The weapon can destroy enemy targets in an area of many square miles around the launching submarine.

Fleet Ballistic Missile (FBM)—

Polaris

Polaris can be launched from surfaced or submerged submarines and will be able to reach most strategic



SPARROW V's ON WINGS OF F7U CUTLASS

targets in the world with relative accuracy and effectiveness.

A solid propellant missile with a range of approximately 1500 miles, *Polaris* is drastically different from all missiles described above. Once fired, it is guided by its own built-in inertial guidance system and is free from all external controls. The missile is given direction and intelligence on where to go before it leaves the submarine.

Pin-point location of the missile's launching ship can now be made by SINS (Ship's Inertial Navigation System), which was tested thoroughly on board USS *Compass Island*.

Polaris offers several advantages over other ballistic missiles. Its solid propellant permits a fast firing time, the mobile submarine cannot be pinpointed by the enemy as can a land launching site, and should the launching ship become a retaliatory target and exposed to enemy attack, American or allied territory would not be hurt.

LET'S LOOK AT THE RECORD

Dallas Hails GCA Record 50,000th Safe Approach Logged

The sign was made. The cake was baked. GCA Unit No. 30 at NAS Dallas was ready for its 50,000th accident-free Ground Controlled Approach.

It was Cdr. Joel D. Morris, USNR-R, Oklahoma City, who reported in for a simulated ground controlled approach to the field.

After he touched down on the runway, Cdr. Morris, skipper of Naval Air Reserve VF-703, was puzzled by unexpected orders to return to the parking



MORRIS OF VF-703 IS WELCOMED AT DALLAS

ramp. He was even more puzzled when he saw Capt. R. M. Harper, NAS Dallas C.O., and members of his staff, walk toward his aircraft.

As Capt. Harper reached up to shake the bewildered pilot's hand, LCdr. Len M. Showalter, OinC of GCA No. 30, handed him a sign, and congratulated him on making the 50,000 consecutive accident free approach executed by the GCA unit.

In the picture, left to right, are Capt. Harper, Cdr. Morris, LCdr. Showalter, and Cdr. Larry E. Parsneau.

Saves Planes in Blizzard LCdr. Epperly Receives Citation

LCdr. Robert Epperly has been cited for helping to save four Air Force C-124 *Globemasters* in the Antarctic.

He was flying an R4D from Christchurch, New Zealand, to McMurdo Sound when he learned that a severe blizzard made landing conditions impossible at his destination. Already past

the point of no return, LCdr. Epperly headed his ski-equipped plane toward Hallett Station, a remote outpost at the entrance of a box canyon surrounded by 15,000-foot mountains and 10,000-foot glaciers. He landed in the canyon without incident.

Meantime, four *Globemasters* were returning to McMurdo Sound after making cargo drops at Pole and Byrd Stations. The blizzard continued unabated at McMurdo Sound, and GCA approaches were impossible.

McMurdo operations alerted LCdr. Epperly at Hallett and advised the *Globemasters* of the possibility of using Hallett as an alternate. They proceeded toward Hallett with darkness approaching.

LCdr. Epperly stationed his aircraft at the approach end of the canyon and had the few available surface vehicles there stationed in line along the ice with their lights on. He remained in his plane's cockpit and faced the canyon's entrance.

As the first C-124 arrived overhead, LCdr. Epperly vectored him through a letdown and provided a visual GCA approach to the ice. The other *Globemasters* were similarly talked down.

Next day the *Globemasters* were fueled by P2V-7 ski-*Neptunes* of VX-6 and returned to McMurdo Sound.

For saving the four *Globemasters*, LCdr. Epperly was awarded a letter of commendation from RAdm. G. Dufek, Commander of Operation Deep Freeze.

Makes 20,000th Landing Demon Pilot Sets Mark on the Sara

Ltjg. Charles T. Sylvester of VF-31 made the 20,000th landing on the 4½-acre flight deck of the USS *Saratoga* just before that ship left the Middle East. He flew a F3H *Demon*.

RAdm. George W. Anderson, Jr., ComCarDivSix, said "We have come a long way in carrier aviation since the time it took the USS *Lexington* five years to make 10,000 landings."

Ltjg. Sylvester is the youngest in a line of naval officers. His father is VAdm. John Sylvester, Commander Amphibious Forces, Pacific Fleet, and his grandfather was Adm. H. E. Yarnell.



VS-872 did it again! Bud Richards, skipper, prepares to throw away an old "white hat" to celebrate the Oakland squadron's fourth consecutive Noel Davis Trophy as best anti-submarine squadron in the Naval Air Reserve.

Safe Flying Marked Tour Whiting Pilot Takes Up Copters

Ltjg. John D. Gebhart, a North Field instructor at Whiting, logged his 1200th hour of accident-free flight instruction just a week before he checked out. Senior man in Squadron Five, his first instruction hop was in March 1956, and he's had many students in the SNJ and T-28 since.

Gebhart entered Flight Training in May 1954, after having served as an ATAN. He earned his wings and commission in October 1955. Now, in the world of whirlybirds, he's undergoing eight weeks helicopter training at Ellyson Field in preparation for a tour with HU-1 at Ream Field, Calif.

LT. DERALD SKALLA of VF-24 gets helping hand from William DeClue, AN, after flying his missile-rigged *Demon* eight straight hours. The flight, claimed to be a record for the F3H-2M, required two in-flight refuelings.





MAJOR ITEM on CNAResTra agenda is Annual Military Inspection of 22 activities. Here RADM. Allen Smith looks over Columbus' AWS-69.



CAPT. J. A. MASTERSON, NARTU Anacostia CO, accepted the challenge of General Order 21 by inviting Ltjg. Thorin to address Reserves.

WORD TO THE WEEKEND WARRIOR

Leadership at Anacostia

KNOW your stuff—be a man—look after your men!" In plain language, this is one of the important messages of the Navy's Moral Leadership program which was directed by the Secretary of the Navy in General Order #21.

The campaign is coordinated in Washington by the Chief of Naval Personnel through the office of his Special Assistant for Leadership. The responsibility for carrying out the order rests with each individual.

Capt. J. A. Masterson, commanding officer of NARTU ANACOSTIA, quickly set up a local program. He appointed Cdr. R. B. Nichols as Leadership Officer, charged with putting theory into practice.

An invitation was extended to a speaker to address a group of Weekend Warriors and ship's company. At 0800 one drill Saturday, Ltjg. Duane Thorin gave the facts to an attentive audience of about 300.

A veteran of 20 years active duty, Mr. Thorin is eminently well-qualified

to speak on the subject. He enlisted as an Apprentice Seaman and, therefore, recognizes leadership problems at all levels. His book, *A Ride to Panmunjom*, graphically tells of his experiences as a prisoner of war in Korea, and forcefully backs up the principles embodied in the Code of Conduct.

"The Navy takes over where family and school leave off," he explained, "but attitudes and habits can change—will change, in most cases—after a man joins. Whether the change is for better or worse will depend on what he ex-



AWS-82 OFFICERS who commute from Pensacola to NAS New Orleans honored. From left, Cdr. R. L. Meierhenry, Cdr. C. M. Kobr, Councilman Clasen, Capt. F. M. Beck, LCdr. M. H. Stopinski, Cdr. D. M. Jones.



OVER 24,500 HOURS of safe flying in FY 58 earned awards for six NAS Dallas squadrons from Capt. R. M. Harper, CO. Cdrs. Huffman, Coleman, Windt, Lauratis, Phillips, LCdr. Skewis accepted them.



EAGLE SCOUT Gary Miller rides tractor with Capt. J. H. Newell, skipper of NAS New York, named 1959 District Scout Finance Chairman.



MAID OF THE MIST, Delores House, PN2, USNR, ends a year's reign with citation from Capt. R. Kirkpatrick, CO, NAS Niagara Falls.



AT HOME BASE, NAS Oakland, Lt. D. Petersen and Maj. J. Bowers, VR-871 Marines, check out an R5D before a successful cruise in Hawaii.



CDR. E. W. PACEK, NAS ATLANTA exec, gave stationkeeper Stephens, AM2, 48-hour passes for designing improved visibility taxi wands.



VF-782 SHARPSHOOTER, Ltjg. Tom Hinkle, shows sleeve riddled during NAS Fallon training tour. His 34% was high for LosAl.



ANTI-NOISE HELMET for HS and VS crewmen first tried in Reserves by HS-772 at Los Al. LCdr. H. P. Heising fits LCdr. F. D. Heacox, XO.

periences in the way of example by his seniors and the general atmosphere of the units in which he serves. Add to this the demands on leadership which have resulted from technical advances, and you have the challenge facing each of us today."

As a POW he learned the importance of meeting this challenge. "Under con-

ditions no worse than those in WW II the mortality rate increased fourfold. Many died of 'give-up-itis' — they simply no longer had the will to live."

Key to New Orleans Given

Councilman Glen Clasen, representing Mayor de Lesseps S. Morrison, gave a scroll of honorary citizenship and a

key to the city of New Orleans to each of six Pensacola officers of Air Wing Staff 82, based at Alvin Callender Field. They compiled 45 years of Reserve service there and traveled about 1,500,000 passenger miles attending scheduled drills. Cdr. D. H. McGoun was on a training flight when the picture on the opposite page was taken.



RESERVE OFFICERS from White Oak Naval Ordnance Laboratory view F8U-1 at Patuxent River during two-week active duty tour. They saw newest ordnance and were lectured in weapons delivery tactics.



TWO HS-891 helos from NAS Seattle rescued two AF officers after ejection. From left: Ltjg. P. D. Pirret, Lt. K. J. Spee, ADs Walkley, Werstink; others, Cdr. Roger Gill, Lt. A. Odden, Chiefs Royce, Yeaman.

AND THERE I WAS ...



Finally There Was Water

PRACTICALLY surrounded by water and equipped with millions of dollars worth of air, land and sea transportation equipment, the Naval Station Argentina was recently compelled to call upon a lowly pack animal to solve a critical water problem.

The station experienced an unusually dry season and the main water reservoir was being depleted at an alarming rate.

Engineers had foreseen such an emergency several years ago and had laid plans to use water from a backwoods lake to augment the main reservoir. A gas-driven pump had been installed to pump water when the need arose.

But the only means of transporting fuel to the pump was by helicopter. This method was satisfactory until a dual emergency arose. Just when water was needed most, the helicopter became inoperable.

Terrain leading to the lake was mountainous and too rough for land vehicles.

Engineers and planners surveyed the area

and made various calculations and numerous suggestions—all unworkable. Just when their brain session approached the point of despair, the janitor who was cleaning the conference room posed a solution. He knew a guy who knew a guy who had a horse.

The horse was not immediately available for observation, but a detailed description was obtained. This was sufficient for the engineers to calculate, by means of micrometers, tapes and slide rules, that the hay-burner weighed 620 pounds (with shoes) and could carry a maximum of 22 gallons of gasoline.

Saddle bags were manufactured and taken to the horse rendezvous where another crisis developed. The horse had strayed into the hills and could only be found with the aid of a helicopter.

Meanwhile, back at the station, the water level in the main reservoir had dropped dangerously low and getting gasoline to the pump had become a top military requirement.

Finally a resident of the area offered to rent his horse, a fine beast of 1200 pounds. The engineers were delighted and once again went to work with their slide rules, micrometers, etc. They calculated that the larger animal could haul a full barrel of fuel on skids over the hump.

Seemingly everything was in readiness for the push-off. But one important detail had been overlooked—getting the horse on the Navy payroll.

Supply Department personnel worked diligently searching the records to find a precedent for hiring a horse. At last the governing rule was discovered and dobbin was on the road to financial reimbursement.

During the panic nobody had thought to feed the horse and when the gasoline was brought to the hop-off point, the poor beast was down to his last calorie. This caused a new delay as the horse had to be fed and given time to digest it.

Just then it was discovered that the horse was desperately thirsty and everyone, including the horse, knew that the water was just beyond the horizon. Dobbin's thirst was finally solved with canned orange juice and the big trek began.

The station's water supply was finally augmented by an "obsolete" horse which accomplished the feat by violating a standard Navy regulation; i.e., going over the hill.

Marines Look for 'Mamma'

A PLEA has been published in the MCAS El Toro *Flight Jacket* for anyone spotting a stray mother cat to please contact VMR-(AW)-314, so the maintenance sergeants can get back to their wrenches.

Ever since the missing feline chose the forward landing gear compartment of an F-40 *Skyray* jet as delivery room for her litter



of five kittens—and then flew the coop—the sergeants have been nursing the three surviving kittens on cow's milk.

Hoss Thieves Corralled

OUT IN THE desert, the sheriff was perplexed. He wagged his head in disgust and admitted defeat to his posse. "Looks like them hoss thieves have foxed us again," he said. Then somebody got an idea:

"Let's call in the Marines!"

Not far away, Marine Helicopter Transport Squadron 362 was doing a duty stint at the Army's Dugway Proving Grounds, some 60 miles from Salt Lake City.

Lieutenants Roy Clark and Charles Weitz immediately boarded their brouc, an HUS-1, and hustled off to aid the sheriff and his posse. They spotted the bad guys, who had been stealing wild horses from a Federal reservation and selling them for profit.

Lt. Clark, the pilot, chased the bad guys over hills and through canyons, as Lt. Weitz, riding shotgun, showed the thieves the Marines meant business.

Finally, the airborne sleuths drove the badmen into a funnel-type canyon. The rustlers thought they had slipped the noose and that they could slide through a small outlet at the end of the canyon.

But the Marines were there. Clark set the 'copter down beside the rocks and waited. As they came out, Weitz, armed with a rifle, captured them one by one and turned them over to the waiting sheriff's posse.

In the Middle of the Med

WHEN VADM. Charles R. "Cat" Brown turned over the Sixth Fleet command to VAdm. Clarence Ekstrom eight supersonic FSU-1 *Crusaders* left the *Saratoga* to fly over the flagship *Des Moines*. In the vicinity of the flagship, they peeled off and broke the sound barrier with 15 resounding sonic booms in a farewell salute.

The customary return salute of 13 guns to RAdm. G. W. Anderson, Commander Carrier Division Six, aboard the *Saratoga* was received by radio in characteristic "Cat" Brown style: "BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM, BOOM."



THE J. G. AND THE LADYBUG

MY NAME is Minerva. I am what you humans call a lady bug, orange with black spots and all. My friends tell me I'm big for my age. And speaking of age, I added a few years to mine last week, all in the course of two rather exhilarating days.

You see, I live here at Moffett; in fact I was born here. I decided at an early age to make a career of Naval Aviation. When I was old enough to fly with my own wings, my father took me out to NAS Operations. We landed on a convenient railing there and sat looking out over the runways. My father said to me, "Minnie, just look out there. From VF-124 and VA-125 on our left, to the other fleet units across the field, you see the Navy's fine jet aircraft—yours for the asking."

At this point I noticed several strange looking white and orange planes directly in front of us with two big growths on the wings.

"Oh, those," my father said. "They are what the Navy calls SNU'S. Take my advice and stick with the fighter pilots. They're much more adventurous. You'll go higher and faster and even land aboard carriers if you play your cards right."

So I began my career in Naval Aviation. I flew in every type of aircraft on the base and father was right, fighter pilots ARE best. I was simply thrilled with the F8U. In fact, as I realized one day that I was actually flying at 42,000 feet at 1000 mph, I completely forgot myself and walked clear across the inside of the canopy.

But why I aged so last week.

It was Monday. I went over to VF-124 but couldn't get a flight. A division of four F8U's was taxiing out, but they all had their canopies closed. So I flew back to Operations and sat around gossiping with the girls and keeping my ear bent toward the duty desk. About 1400 I spotted two pilots walking across the ramp. They were fighter pilots. I could tell just from the way they walked, confident and fearless. It turned out that they were going to take an SNU to Fallon. I had never been to Fallon; so despite my father's advice, I climbed aboard.

Just out of curiosity, I flew up and checked the flight. Seemed pretty normal—headings, distances, radio frequencies, notes on wind and weather, etc. We took off and headed for Sacramento. It began to get chilly; so I crawled up on the J.G.'s shirt collar.

Well, sir, we hit Sacramento right on time and took up a heading for Reno. It was about that time the ARN-6 failed. There were unprecipitated buildups over the mountains and a ceiling considerably lower than the forecast. We deviated to avoid going IFR and after about 25 minutes were once again headed for Reno according to omni indications. The needle indicated erratically for a time and



then it also failed. Attempts to contact Reno Radio were also fruitless and my pilots were obviously irritated.

After a time, the pilots admitted they were lost. Imagine that. Me, with all that jet fighter time, lost in a tame old SNU.

We turned back, but the weather, moving down from the NW, had closed in the mountains; so we had to find Reno or Fallon.

Wherever we were, there were no roads or houses or lakes. Nothing but desert and mountains that looked more like the surface of the moon than anything I had ever seen before. I was used to looking at the ground from 30,000 feet. At 4000 feet above the desert floor, nothing looked familiar. The pilots felt the same, and remarked how they admired the VA boys. That in itself shocked me. I'd never heard a fighter pilot say anything good about "bomber pilots."

Time passed and fuel went with it; so we looked for a place to set down. We came around a mountain and there was the U. S. Gypsum plant at Gerlach, Nevada, with its short dirt runway and rusty windsock looking like Edwards AFB to us. I'll admit I was pretty nervous at this point. But the pilot in command had everything under control and after dragging the field several times, we landed. A rough one it was too (prairie dog interference you know) but safe.

Well now I'll tell you, I was exhausted, but I was also sure the excitement was far from over; so I crawled up under the J.G.'s collar as we were met by people from the plant who were covered with Gypsum Dust but

most hospitable. A call to NAAS FALLON assured us that their helicopter SAR unit had two barrels of fuel in Gerlach which we could have.

After supper, we all headed for Gerlach, six miles distant, to find Sheriff "Cisco" who we were told would arrange to give us the gas. And he did.

I was pretty tired and went to sleep at that point. When I awoke, it was morning and the J.G. was on the wing of the Beech putting in fuel. Sheriff "Cisco" had driven out with the fuel in his truck. After the fueling operation, my pilots and "Cisco" had breakfast.

I don't suppose we'd been there for more than ten minutes, when the doctor from Reno, who flies up twice a week to care for the plant people came in. It is for his small Cessna that the strip is kept barely usable. He certainly thought it was a fine joke, about our being lost I mean. All 290 pounds of him shook with laughter as he sat down and ordered breakfast, four eggs, steak, potatoes, toast, etc. "Looked like a municipal airport down here this morning when I came in. Never seen so many planes here before." He laughed again and stopped eating to slap one of my pilots on the back. It wasn't long before he offered advice as to our takeoff.

"Now this runway is pretty soft for the first third; the middle is ok, but the last third is damn soft; and then there's the high tension wires. . . ." That was enough of that. We chose an over sized taxiway which seemed the lesser of two evils. We made a difficult takeoff without incident and headed for Fallon. It was exhilarating to be airborne again and even more exhilarating when, after 10 minutes of flight, the engines quit. We had switched to our "Gerlach Gas" at an altitude of 7000 feet and lo and behold, it wasn't too good. We had encountered the old nemesis to aviators, "Barf in the Fuel Pumps."

I flew back to my generator switch. There were hands flying like lightning in the cockpit—switch to the good tank, wobble pump in motion and still no engines. We settled lower and lower. The engines caught 40 feet above the ground and we climbed back to altitude and reached Fallon without further incident. We RON'd there while our radios were overhauled and the gas tanks purged.

When we arrived back at Moffett on Wednesday, I stayed around long enough to watch a welcoming committee at Operations cheer the boys home. There was a blond headed J.G. who seemed to be directing the ceremony, rolling out a rubber mat and all. I thought to myself, "Now isn't that nice of them. They must have really missed us."

I'm flying in the F8U now, thank God. Flew with my J.G. yesterday. He was quite at home and, of course, much, much happier.



LATER THERE MAY BE A COOLING SYSTEM

Portable Nose Hangar Made Protects Men from the Desert Sun

A portable nose hangar is now in use at NAAS EL CENTRO. CWO R. L. Moore, maintenance officer, designed and supervised its construction. The idea for the hangar originated with the C.O., Capt. Ben Moore, Jr.

The need for such a piece of equipment was created by the desert sun which heats up the metal skins of the planes and makes it almost impossible to work on aircraft during the day in the summer months.

The hangar is composed mainly of salvage material. Only the canvas was actually purchased. The portable hangar can accommodate the F8U and F3H, latest carrier-based jets.

Kearsarge Gets Old Log Record Mentions Familiar Ports

A portion of the log of the first American man-of-war to bear the name Kearsarge has been presented to the crew of the current carrier USS

Kearsarge by Robert La Salle, 72, of Berkeley, Calif. The log covers the period March to July 1876.

Action recorded in the log took place in Far Eastern waters. Ports of call in the 80-year-old log are familiar to the current *Kearsarge* crew: Hong Kong, Formosa, Manila, etc.



LA SALLE SHOWS LOG TO BOB WELLS, JOI

Seadrome Nears Completion Norfolk Facility the Most Modern

"Boat" pilots used to groping their way down to dark waters in foul weather can look forward to relaxing under similar conditions in the Norfolk area.

Pile-mounted high intensity lights marking the approach and thresholds of the huge seadrome are one of the features of the new facility—described as the world's most modern. The powerful beams can be seen more than 50 miles at 9000 feet on a clear night.

Two years in the making, the seadrome is now complete except for

lights marking the east-west channel which is 12,000 feet in length and 500 feet wide. The channel lights, which will be mounted on buoys, are designed to give readily on contact with aircraft.

Three hundred thousand watts are required to operate the lights at full brightness. Electrical power is conducted from a shore installation by means of underwater unarmored, rubber-insulated wiring used instead of conventional armored cable to reduce loss of electricity. More than ten miles of cable were used during construction.

Main power source for the intricate lighting system is controlled by an



NIGHT VIEW AS INCOMING PILOT SEES IT

electronic brain. In event of power failure, the load and control is automatically switched to a generator driven by a double diesel engine.

• During the 1830's and 40's it was difficult for officers to get promotions. Midshipmen 30 years old were common and there was at least one "passed midshipman" waiting for lieutenant's rank at the age of 50.



ABOARD THE USS WASP, two living compartments, painted U. S. Marine Corps green rather than Navy gray, constitute the seagoing home of 55 enlisted U. S. Marines. Capt. J. W. Wirta commands the detach-



ment. Left, Browning machine gun instructions are given by SSgt. Donald Wirth. Right, manning their battle station, Marines get ready to fire from the Wasp's port after five-inch 38-caliber gun mount.



ALL VF-51 PILOTS, led by Cdr. W. G. Blattman and CAG-5, Cdr. R. M. "Butch" Voris, qualified in carrier landings aboard USS Ranger. The squadron's maintenance crew maintained eight F11E-1 Tiger jets during the carquads. Miramar's Screaming Eagles are shown, front row, left to right: Lt. H. F. Hoare, Lt. N. L. Bausch, LCdr. H. H.

Caserta, Cdr. Blattman, Cdr. Voris, LCdr. S. L. Jaynes, Ens. D. L. Arnold, LCdr. A. D. Caine, and Ltjg. E. D. Nielsen; back row: Ltjg. R. H. Garwood, Ltjg. S. T. Clinton, Ltjg. T. L. Curry, Ltjg. R. D. Bate, Ltjg. T. L. Rhoades, Lt. J. L. Berry, Ltjg. J. T. Gillett, Ltjg. R. J. Johnson, Ltjg. D. L. Harvey, and Lt. I. Q. Gallagher (MC).

HMR-162 Operates Safely Logs 1085 Hours in Single Month

Marine Light Helicopter Transport Squadron 162, flying 18 HUS helicopters under actual field conditions, flew more than 1085 hours in one month without a single accident. More than 850 hours were in direct troop support. The helicopter squadron is commanded by Lieutenant Colonel J. A. Etheridge.

Check Scrap Items with Care Maintenance Officers can Help

Squadron Maintenance Officers can save thousands of dollars yearly by lending technical assistance to the Supply Officer at their supporting activity. They can do this simply by taking a closer look at the process of identifying and handling damaged structural and engine spares and various accessories ready for the scrap heap, Aviation Supply Office says. If the Maintenance Officer finds items beyond economical repair, he should notify the Supply Officer. These items should be disposed of BEFORE shipment is made to nearest Class "A" station or, as applicable, to the designated overhaul point.

Supply inspections of many Naval Air Stations have revealed improper

screening. This has involved shipments of (1) materials beyond economical repair, (2) erroneously identified materials, and (3) items of insufficient value to merit repair.

Shipments like this result in high transportation cost and a breakdown or serious curtailment of O&R repair schedules. Maintenance Officers can prevent such shipment.

Bureau of Aeronautics Instructions

Aviation Electronics Guide

A new publication, *Aviation Electronics Officer's Guide* (NAVAER 00-80T-64), issued by the Aviation Training Division of CNO is now ready for distribution.

The publication is a compilation of information prepared to assist the AEO in the performance of his technical and administrative duties. It contains an introduction to the Naval electronics organization, an outline of technical duties and responsibilities, a summary of pertinent safety and supply instruction, and descriptions of various education and training practices and facilities available for the education and training of personnel under his supervision.

(BuAer NaAer 00.58B and 00.99) and Aviation Supply Office Instructions (FASOINST. 4500.10D, 4710.12C and 4730.1B) cover responsibilities of both maintenance and supply departments in the recovery and shipment of all exchangeable materials.

Hurricane Weather Buoys BuAer Tests New Storm Detectors

The Bureau of Aeronautics is testing a new method of locating hurricanes which may enable storms to be tracked more easily than is now possible.

Three experimental anchored hurricane weather buoys have been placed in the central and western Gulf of Mexico, in areas where shipping is relatively scarce. These buoys transmit weather data every six hours to the Navy and the U. S. Weather Bureau.

Under evaluation are methods of anchoring these buoys in the 12,000-foot deep Gulf, transmission frequencies, seaworthiness, and reliability of the instrumentation. The buoys are designed to transmit for six months on their six-hour schedule without replacement of batteries. They are also engineered to withstand heavy seas for prolonged periods of time.

No estimate of when the system will be placed in actual operation can be made until the tests are completed.

NAVAL AIR'S PROVING GROUND

JUST AS the automobile industry has used the Indianapolis Speedway 500-Mile Classic as its accelerated proving grounds, the Bureau of Aeronautics has developed a center for testing and evaluating aircraft at its Naval Air Test Center, Patuxent River, Maryland.

Core of the Navy's accelerated aircraft evaluation in terms of Fleet operation is the Service Test Division. This division came into existence in July 1944 to meet the need of the Navy for field service tests on new model aircraft. Such a program makes possible early detection of possible areas in which the new model may fail to carry out its tactical missions. Modification or correction can then be made to solve the problem.

In order to conduct extensive and comparative tests to determine the ability of the aircraft to perform the flying mission for which it is designed, planes are flown under all types of conditions, day and night, in all kinds of weather, by NATC pilots.

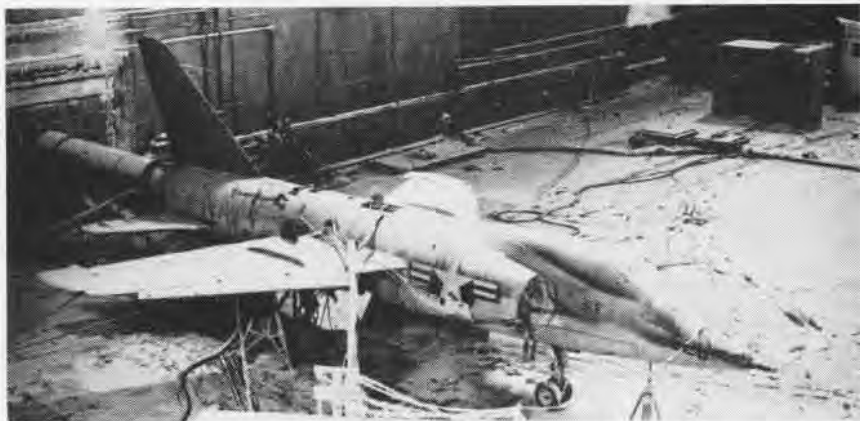
The pilots are, in general, those with recent fleet experience and graduates of



PILOTS OUTFITTED IN THEIR 'MOON SUITS'

the U. S. Naval Test Pilot School at the Center. The majority of the 300 assigned enlisted personnel possess the varied experience necessary to meet the problems encountered in the maintenance of new aircraft.

Projects assigned Service Test by BUAER run the gamut from service suitability trials of complete models to evaluation of supporting parts and tools. Flight trials are conducted to



GRUMMAN FIGHTER OPERATES AT -60°F . IN CLIMATIC HANGAR AT EGLIN AF BASE

determine such items as power-off landing patterns and techniques as well as the all-weather and tactical capabilities of the airplane. NATC pilots also make recommendations on instrument and cockpit lighting for night flying, instruments for blind flying, ventilation, heating and vision.

The Fleet Introduction Program is designed to indoctrinate fleet pilots and maintenance personnel in new aircraft by actual participation in around-the-clock operations at Patuxent River prior to fleet delivery of the "new birds." In these programs, pilots learn by doing. Service Test within the last three years has conducted FIP's for the F8U-1, A4D-1, F11F-1, F3H, F4D-1 and A3D airplanes.

Recent projects BUAER has assigned to Service Test include services suitability trials of the A3D-2 weapons system, rocket thrust augmented fighters,

various types of buddy air refueling systems, and the five-liter liquid oxygen converter system for the F4D-1 aircraft.

Aircraft maintenance has included a variety of evaluations, involving such varied equipment as a tool caddy, window seal tools, welding torch lighters, dual action sander, snap-on axle nut wrench, spot weld cutter, automatic wire-stripper, right angle wrench extension and other maintenance equipment.

The Aero-Med Section is manned by flying personnel of the Medical Corps. They conduct tests of survival equipment, high altitude pressure suits, ejection seat, and determine the effects of "G" on pilots and study other human engineering problems.

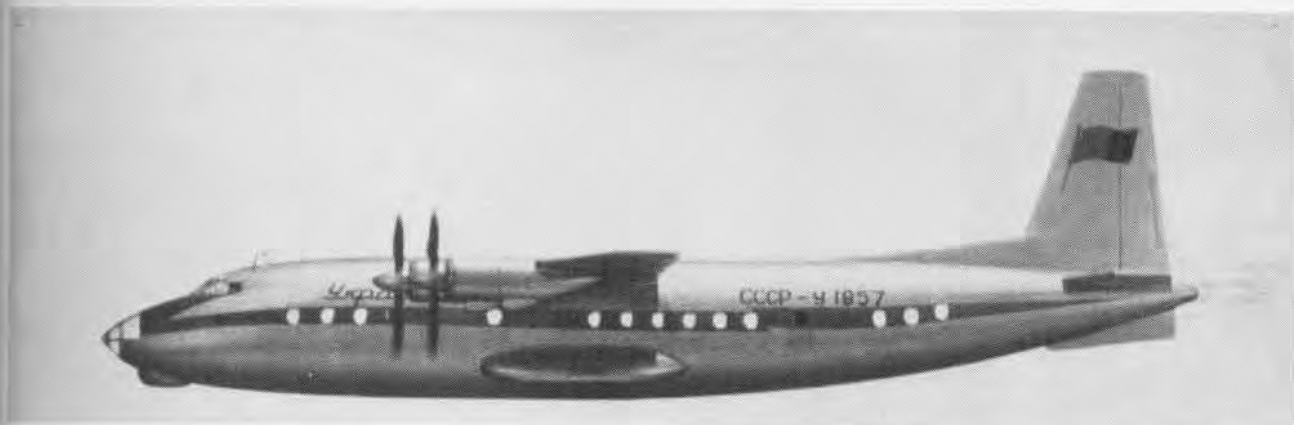
Service Test also maintains a detachment of two officers and approximately 17 enlisted personnel at the Eglin AF Base Climatic Hangar in Florida. In this hangar, cold weather tests are conducted on aircraft and equipment under cold weather conditions.

Service Test provides for BUAER timely information. At the same time, Fleet personnel are introduced to the new equipment, and problems are solved before new aircraft or equipment are introduced into Fleet operations.



CREW REFUELS ROCKET-AUGMENTED FURY

● By the end of 1916, 1000 Naval Aviators had been trained at Pensacola. Through 30 June 1958, the count had risen to 75,039. The peak period, 1941-1945, accounted for 28,582 of this total. Low year in Pensacola's output was in 1948 when only 805 candidates completed the training syllabus.



RUSSIAN TURBOPROP TRANSPORT

Like Lockheed C-130 in design and performance, the 'Cat' is a high-wing, civil passenger transport powered by four 4000 hp turboprops. It could be converted to a cargo carrier. Rugged structure and landing gear permit it to operate from small and relatively unprepared fields.



IN FOREIGN SKIES

Japan to Get Simulators

Two contracts to build electronic training equipment for the Japanese Air Defense Force have been awarded by the U. S. Navy to the Nuclear Products, Erco Division, of ACF Industries, Inc.

The contracts were awarded by the Navy Training Device Center, Port Washington, New York.

One is for an antisubmarine warfare tactics simulator used in training non-pilot crews of the *Neptune* P2V-7 sub-killer airplane. The other contract covers three units of a general instrument simulator for navigators.

Space Medicine Symposium

The Space Medicine Symposium held in London late in 1958 was organized by the British Interplanetary Society and the Royal Air Force Institute of Aviation Medicine, with the support of the British Medical Association.

Those attending included medical research workers in space and aviation medicine, designers of high altitude aircraft and equipment, and scientists interested in upper atmosphere and extra-terrestrial conditions.

The United States was represented by a delegation from the Office of

Naval Research. Cdr. G. W. Hoover read a paper on the man-machine system in space vehicles. This was followed by a round table discussion of members of the ONR team, including Capt. S. S. Aherby (Director of Naval Sciences Division, ONR), Dr. H. E. Sheets (Electric Boat), A. Mayo (Douglas Aircraft) and O. Q. Niehaus (Bell Helicopter).

Again and again during the symposium, it was made clear that man is the limiting factor in space flight, and space vehicles must necessarily be built around him. Various ways which are being explored to make it possible for men to engage in space flight were thoroughly discussed.

Chiang Kai-Shek Visits Midway

President Chiang Kai-Shek visited the Navy's U. S. Seventh Fleet on patrol in Formosan waters and was accompanied on the USS *Midway* by Admiral Herbert G. Hopwood, Commander in Chief, U. S. Pacific Fleet. The Honorable Everett F. Drumright, U. S. Ambassador to the Free Republic of China, accompanied the Generalissimo on his visit.

During his visit to the *Midway*, the Generalissimo witnessed a demonstration of the Seventh Fleet's air power.

Yank-Canadian Exercise

Canadian ships and U. S. Naval Air Forces recently combined in a successful cooperative ASW exercise.

Canadian Destroyer Escort Squadron Two and U. S. Naval Air Antisubmarine Squadron 21, Helicopter ASW Squadron Six and Patrol Squadron 42 participated in the exercise off Southern California with "opposing submarines" furnished by the U. S. Navy.

Canadian Commander, Capt. R. E. Pratt, RCN, praised the ability and standards of the U. S. Navy helicopter and S2F squadrons working with his destroyers.

Cdr. William J. Scott, C.O. of VS-21, said, "We've worked with the Canadian ASW squadrons before and we know they are good. It was a pleasure to see and work with them again this year. The Canadians concentrate their efforts on ASW and, consequently, are very proficient."



RADM. R. E. DIXON, Chief of the Bureau of Aeronautics (ret.), and Mr. W. D. Hammond of Lockheed Aircraft sign document which gives Lockheed authority to build 42 P2V Neptunes in Japan for the Japanese MSDF.



THE T1F2, built by Fuji Heavy Industries Ltd., is the first jet aircraft designed and developed by Japanese industry. After a successful initial flight, the test pilot praised the T1F2's flight characteristics, emphasizing the easy take-off and landing speed so important to its role as a modern trainer. The T1F2 development was made possible through the close support of the Japanese Defense Agency Technical Research Institute, Air Self Defense Force and subcontractors.

New 'Draken' Announced

A special export version of the Saab-35 *Draken* single seat, supersonic all-weather jet fighter and attack aircraft has been announced by the Saab Aircraft Company, Sweden.

In the Royal Swedish Air Force, this new version will be known as the 35B. It is powered by a new Rolls Royce engine of undisclosed thrust. According to the manufacturer, this new engine and other refinements will put the 35B in the Mach 2 plus class and increase the service ceiling and range.

Initial production version of the Saab-35A will shortly go in service with the Royal Swedish Air Force.

POLES STAGE NAVAL AIR SHOW

ON 7 SEPTEMBER 1958, at the same time the British were completing their annual show at Farnborough, a Polish Naval Air Show was being staged at Gdansk, Poland, in celebration of the tenth anniversary of that service. Publicity preceding the event announced that the show would consist of gliders, piston and jet aircraft, and helicopters.

In addition to the Naval Air ground display, the Polish Air Force staged a fly-by in celebration of Polish Air Force Week. The fly-by was made at low altitude with *Beagle* light bombers and *Mig* fighters.

During the past ten years, Polish Naval Aviation has undergone a number of growing pains and setbacks, including defections of aircrews and their aircraft to the West. But today, modernized, the Naval Air Arm is made up of *Migs* and *Beagles*.

The Polish Naval Air Arm is an integral part of the Polish Navy. Units are based at the coastal airfield of Gdansk. Like its Soviet counterpart, Polish Naval Aviation is land-based.



FAGOT FIGHTERS PARTICIPATED IN THE AIR SHOW HELD IN SEPTEMBER AT GDANSK



PILOTS ON AIR STRIP AFTER TRAINING FLIGHTS AND BEFORE GREAT AIR PARADE



MODERN PLANES WERE POPULAR EXHIBITS



POLISH LIEUTENANT AND FAGOT FIGHTER



NAVAL AVIATORS CHAT BETWEEN EVENTS

LETTERS

SIRS:

I was interested in the article on page 36 of the November issue, since I am also an ex "Felix Cat" (January 1927-June 1929 and July 1932-June 1933). In the interest of accuracy and of possible historic interest to VF-31, I checked my album and came up with the following:

The squadron carried the designation VF-6 in 1927 (Frank Wagner, C.O.). It was flying VE-7's and VE-9's and based at North Island, San Diego. We made the cruise on the original *Langley* with these aircraft that year to Guantanamo Bay and the East Coast, taking part in the Fleet Review at Norfolk that year. VF-1 was along, flying TS-1's.

On return from the cruise, we shifted to FB-5's, a real hot-rod, with Packard water-cooled engines and a wing loading of 17.5 lbs. per square foot! The following year the cruise was to Honolulu (Ossie Ostrander, C.O.) and we were flying F2B-1's. The designation of the squadron was changed to VB-2-B at the end of this cruise. When Ossie was detached, "Indian Joe" Tomlinson succeeded to command for a few months until Art Davis arrived to take over. It was at the end of this cruise that Emil Chourre designed the Felix Cat insignia to conform to the new lighter-bomber designation. This cruise was on the *Saratoga*.

I believe VF-1 assumed the "High Hat" insignia about this time also (Jerry Bogan, C.O.).

The 1929 cruise to Panama was the occasion for Lindbergh's visit to the *Saratoga* while he was in Panama surveying PanAm air routes. He flew off the *Saratoga* in FAB-1 number 2B1. "Put" Storrs and I flew wing on him and escorted him ashore.

After this cruise I went to Pensacola and pushed students around for three years. On my return to the squadron in 1932, the designation had reverted to VF-6 and Matt Gardner was commanding officer. We were flying FAB-5's on the *Saratoga*.

WILLIAM V. DAVIS, VADM
Deputy Commander in Chief
U. S. Atlantic Fleet

SIRS:

On page 28 of the November 1958 issue of NANews, VAH-9 claims a record number of hours flown (710) in a single month by a carrier-based squadron. Fighter Squadron 32, commanded by Cdr. G. C. Buhner, was deployed with VAH-9 aboard the *Saratoga*. During the record month in question, VF-32

logged a total of 762 hours flying F8U-1 *Crusaders*. If not a record, it was a mighty fine month while deployed.

Of further interest, both squadrons were part of Carrier Air Group Three which, during the same month, logged over 5000 hours. Perhaps CVG-3, then commanded by Cdr. R. H. Mills, should lay claim to a record number of hours for a single month while carrier-based. Any takers?

H. E. RUTLEDGE, LT
Fighter Squadron 32

SIRS:

My November 1958 issue of NANews fell open to page 36, and my eye fell on an old friend, Felix. I was surprised at the caption on the lower photo though. I was a member of Fighting Three in '43, '44, and '45, and during this time we were using Felix for an insignia. I think you've pulled a boo-boo.

Incidentally, do you have a record of the name of the pilot in the F6F? Looks familiar, but I can't place him.

BERT O. LARSEN, LCDR.
USS F. D. Roosevelt

On 15 July 1943, VF-3 became VF-6 and vice versa. After the designator switch, VF-6 retained Felix as its insignia. The experts tell us VF-3 was authorized to wear Felix after the decommissioning of VF-6 in 1945. VF-6 pilot shown in the article was Ltjg. Louis Davis.

SIRS:

The USS *Leyte* is currently engaged in the preparation of a historical cruise book to deal with the past 13 years of the *Leyte's* service to the fleet. As far as we know, this is the first "cruise book" to attempt to scan so large an area of time. We hope that many of the former officers and men of the *Leyte* who served aboard as members of squadrons or ship's company will want to obtain this book.

Inasmuch as the *Leyte* is being decommissioned early next year, this will be the last and, we hope, the best cruise book ever published by our ship. Any person desiring to order a copy of the book may do so through the *Leyte* PIO. Books will be mailed to purchasers upon receipt of payment of \$5.00 per copy.

ROBERT A. OLSON, ENS.
Cruise Book Committee

USS *Leyte* (CVS-32)
FPO, New York, N. Y.



THE YEAR IN REVIEW

The 1958 "Chronology of Outstanding Events" in Naval Aviation will appear in the February issue in order to include December dates.

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Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget, 22 April 1958.

● COVER

It's the 59 for '59! With a picture of the Forrestal departing for the Mediterranean, we sail into the new year.

● CREDITS

Ltjg. Neil O'Connor, USN, did the drawings to illustrate the story of the Ladybug and the JG on p. 29. He is a frequent guest artist for NANews and illustrated the article on airspace problems in the December 1958 issue, pp. 13-15.

● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a \$2.50 check or money order (\$1.00 additional for foreign mailing) made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C. Single copies are 25 cents each.

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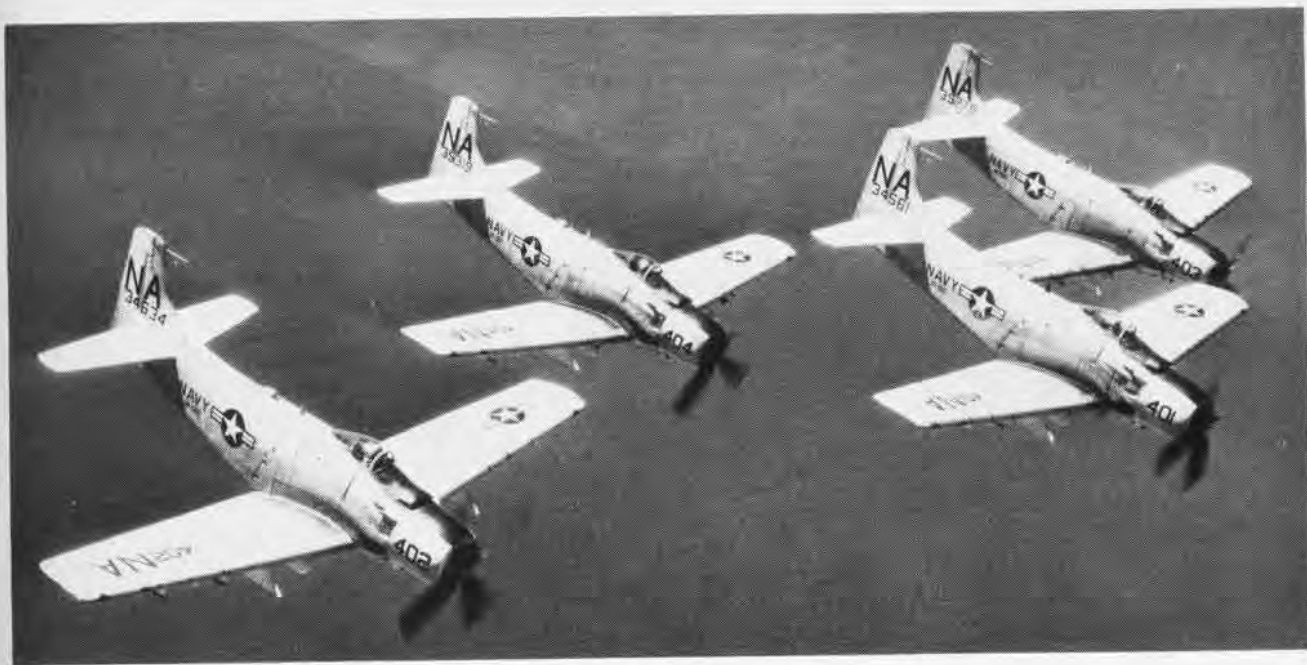
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TWO STARS, DOUBLE O AND JUMPIN' JOE



NAVAL AVIATION

NEWS



Jumpin' Joe is the honored nickname bestowed on RAdm. Joseph C. Clifton, Chief of Naval Air Advanced Training. From his Naval Academy days, Jumpin' Joe built a reputation on his habit of showing, as well as telling, subordinates how to do things. His spirited leadership, demonstrated initially as All-American fullback, has made itself felt in Naval Aviation for more than 27 years. As a squadron and air group commander during WW II, he led his pilots so capably that Air Group Twelve became legendary for its daring and doing. Recently Jumpin' Joe, as a flag officer, qualified in a jet aboard a carrier. At 50, he is still showing the youngsters — and telling them, too, of course. Your own career in Naval Aviation can be fashioned under the world's best leadership. College graduates, 19-26 years old, with or without dependents, are eligible for the Navy's Aviation Officer Candidate Program. Here is your chance to train as a commissioned officer with full pay and allowances. Visit your Navy Recruiting Station or U. S. Naval Air Station.