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OPERATION SNOWBALL FROSTED THE USS FDR

The USS Franklin D. Roosevelt spent 13 days of experimental cold weather exercises off the coast of Newfoundland. Dubbed 'Operation Snowball,' all its tests were very satisfactory. The tests consisted of trying ship's catapults and arresting gear in sub-freezing temperatures. Air and surface launched guided missiles and ice removing equipment were also tested in the coldest weather ever encountered by the FDR.

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VIGIL OVER BARREN SEAS

THE SKY was obscured. Visibility was just one mile with blowing snow. Wind was at 75 knots, with gusts up to 92 knots, and 25 degrees cross-wind. Take-off was made towards the mountains. Severe turbulence was encountered for one hour after take-off, consequently, we were unable to fire up the radar during that time. GCA was unable to operate because of the possibility of the wind blowing off the antenna. The radio range was out of commission as the antenna had been blown down. There were no instrument departure aids. Rest of flight was uneventful."

The above report of a flight over the Atlantic Early Warning Barrier was routine, made by the plane commander of one of VW-13's planes.

The beginning of this 24-hours-a-day, seven-days-a-week operation came with the commissioning, in July of 1955, of the Atlantic Airborne Early Warning Wing at Patuxent. The first squadron of the Wing, VW-11, was commissioned the following month, and VW-13 and 15 at succeeding monthly intervals. The Wing was then in business.

But much had to be done before the barrier could be set up. VW-11 was scheduled for deployment to Argentia, Newfoundland, just nine months from commissioning, but it had only 21 trained men with experience in the WV-2 *Super-Constellation* aircraft assigned to the Wing. VW-13 had 13 months to prepare, and VW-15, 16 months. Pilots, crews, and maintenance men had to be trained. A big task, almost impossible.

The beginning of the Early Warning Barrier had top priority, however, so help began arriving. Personnel training went into full swing immediately. In the early stages of instructing pilots and crew members in the *Constellation*, the Wing had only mock-up panels. Instructors arrived from other *Super-Connie* squadrons and Lockheed representatives helped to teach.

VW-13 CO REGULARLY MAKES BARRIER HOPS

PILOTS OF THE wing were required to undergo two weeks of extensive ground training in the systems and operating procedures of the plane before they took syllabus flights in the R7V and WV-2 aircraft. Animated training panels and procedures trainers were utilized throughout the course. Intensive instrument and emergency procedures training was part of the flight syllabus.

In preparation for the real thing, prospective patrol plane commanders were given 96 pilot hours; second pilots, 64 hours; and third pilots, 36 hours of transitional training in the WV-2. Check flights were conducted under rigid wing supervision, and many a commander felt like a cadet again as he battled to "cut the mustard" during this condensed course in big plane aviation.

Student flight engineers took a 12-week training course at the Lockheed Aircraft Corporation factory, supplemented by additional ground training at Patuxent River. They were required to accomplish 50 panel-flight hours, many of which were under simulated emergency and compound emergency situations, before attaining the designation of First Flight Engineer. The Wing also put these men through a check flight to make certain of their proficiency.

CIC officers and trained men reported from Glenview, Glynco, and Dam Neck. Ground training, based on the latest in CIC training devices, was given at Patuxent. Airborne crew training began as crews were formed and many flights were made along the Contiguous Line.

This Early Warning Barrier guarding our east coast consisted, at the time, of radar picket ships. The plan was to supplement these ships with Navy LTA and Air Force planes. This early training of WV-2 crews not only provided practice which would come in handy, but also aided training of crews of the picket ships employed on the line.

After the flight crews had become familiar with the aircraft, the CIC department began a program, in conjunction with other departments, of participating in flights along a simulated barrier. The barrier, located near the coast, was designed to orient and exercise all flight personnel with on-the-job training. Familiarization of radar capability and scope presentations was hashed and rehashed.

While training progressed, ComAEWWingLant and Staff developed the manifold details for conducting the barrier in terms of logistic requirements and schedules. Survey flights were made to Argentia where, in cooperation with the CO of NS ARGENTIA, housekeeping and support programs were jelled. Flight, communications, airfield, quarters and recreational requirements were determined, and the work commenced. Progress checks were made on the construction of a new Miami hangar and the new 10-story BOQ, nicknamed the Argentia Hilton.

From the admirals in Washington and Norfolk to the seamen in Argentia, the late spring months were ones of accelerated activity. Each worked at his job to insure the beginning of the Atlantic Barrier Operations July 1, 1956, to meet the U. S. Navy commitment to the Joint Chiefs of Staff. And their efforts were successful.

On May 1, 1956, VW-11 and Wing staff said goodbye to Maryland and hello to Newfoundland. Aircraft and personnel headed north for a postgrad course of area familiarization and more on-the-job training. As soon as personnel were bedded down in Argentia, instruction commenced on operations peculiar to North Atlantic conditions emphasizing all-weather flying, communications, maintenance and survival, all vital to the mission.

SNOW REMOVAL AT ARGENTIA VIEWED FROM UNDER WING OF WV-2

POWERFUL ENGINES OF CONNIE WHIPS UP THE SNOW ON RUN-UP

While flight crews were "shaking down" in the air, maintenance and supply personnel were setting up shops, installing equipment and laying in supplies to support the high aircraft utilization required for Barrier operations. The goal was 150 hours per month per aircraft. Flying the long hop from Argentia to the turn-around position, communicating and working with the sea-going radar pickets, the ships of Escort Squadrons 16 and 18, the WV pilots and crews of the DER's hardened themselves for the long hours in the air and at sea that the Barrier mission demanded.

Operational facilities at the beginning were limited, and construction was needed to remedy the situation. Adding to other problems, VW-11 deployed with only part of its allotted WV-2's. The others were still to come.

The supply system of the wing was heavily taxed. Lack of a full range and quantity of spare parts for electronic equipment and aircraft engines required constant emergency procurement and follow-up.

A typical example of the problems confronting the wing supply department involved the failure rate of spark plugs. Trying to outguess the rates of consumption of these seemingly minor, but vital, items required study and charting, for they had to be on hand when and where they were needed. During the months of May and June, VW-11 planes

SUPER CONSTELLATION OF AIRBORNE EARLY WARNING WING OVER THE ATLANTIC, KEEPING WATCH FOR POSSIBLE AIR INVASION

used a total of 1459 spark plugs, over 700 plugs a month.

When the spark plug problem was giving one plane commander his share of trouble, he wrote: "On a routine winter barrier, the flight engineer reported several spark plugs misfiring as revealed by the engine analyzer. This was quite common at the time. As the flight progressed, more spark plugs became fouled. However, the weather was good, so the barrier was continued. After several hours, the weather picture changed and icing conditions were encountered, necessitating a power change to maintain altitude.

"When more power was added, two engines started misfiring and running rough. Higher power settings were not possible due to fouled spark plugs, and it was feared that two and possibly three engines would fail because of their roughness in operation at the time. A lower altitude was selected which enabled low power settings, which were the only settings the engines would operate with. As a precautionary measure, the U. S. Coast Guard sent a plane out to escort us to our home base. The fouled plugs were the result of faulty fuel injection nozzles." A routine flight?

THE ALL-IMPORTANT Wing Communications Center began operation in the already overloaded Naval Station Communications Center. Once it shifted into high gear to train personnel and obtain equipment, there was a steady flow of men and equipment needed to provide the ears and voice of the Barrier operation. The success of the Communications Center in getting organized is portrayed by the record 12,000 messages handled in October, and half again as many more in November. That is a lot of messages.

In order to avoid confusion and interference with commercial airline flights, air space was assigned. The block acquired was from 2000 to 6000 feet. A plane can pick up an awful lot of ice at those altitudes. And they did! One plane commander made this routine report: "I took off at 1800 for a 15-hour barrier. Conditions at Argentia were 2000 broken, visibility over three miles. Tops of clouds in operation area were reported at 6000. I asked for 7000, but this was denied. As soon as we passed the coastline after about 40 minutes, we entered the tops of cumulus clouds and began picking up light rime ice.

"We were in and out of clouds for about 1½ hours. Clouds were building up higher all the time, and we soon entered continuous cloud, continuing to pick up rime ice all the while. (Temperature ranged from —10° to —14°C). The boots were removing the ice very well from the leading edges of wings and tail, but it kept building up steadily on nose, windshield, prop spinners, engine cowls, inboard edge of wing, wing tip tanks and radio antennae.

"We were using maximum endurance cruise at first. This was my big mistake, because it made such a large angle of attack that ice began collecting under the wings also. As the flight progressed we had to add more power all the time.

"Every time I thought speed was up to the point it would hold with less power, I would reduce power, but after a few minutes, it would be necessary to add more power. I again requested a higher altitude, but couldn't get it cleared through the Wing Commander. After about seven hours on barrier, power was up nearly to maximum cruise continuously and climb power was being used frequently to

CIC OFFICER (STATION 19) TRACKS DETECTED PLANE'S FLIGHT

CREW 12 OF VW-13 FLEW SQUADRON'S HIGH TIME FOR A MONTH

GIANT ICEBERGS ARE A COMMON SIGHT TO AEW FLIGHT CREWS

maintain air speed. I never let air speed get below 160 if I could catch it in time.

"By this time we had about four inches (diameter) ice on the antennae, six to seven inches protruding from wing tips, prop spinners, etc. Engine cowls were iced inboard about three inches.

"Windshield was iced completely over with de-icer on high, but blower would melt a small space at top. Power required was up to maximum cruise almost continuously. When co-pilots static system froze, I decided we'd had enough.

"Informed Wing Commander of conditions and reported that I was returning to base. They came back with clearance to 12,000, but I couldn't climb that much by then. Finally got clearance to base and returned after about eight hours flight. Still had considerable fuel, so because of weight of ice, dumped 5000 pounds fuel. When we put flaps down to 60% for approach condition we were carrying close to climb power, maintaining about 150 knots.

"Shortly after we put flaps down, we felt a surge and heard cracking noises. Speed suddenly increased to 175 knots and plane yawed. We figured some of ice had carried away from underneath wing, due to flaps changing angle of attack. We made a normal approach and full flap landing carrying about ten knots extra all the way. When we landed a lot of ice dropped off the plane, and taxiing back we could see chunks on the runway that looked about 10 to 12 inches in maximum dimension.

"Post flight inspection of plane showed no ice under the wings, but considerable on wing tips and prop spinners. Each outboard vertical stabilizer had a dished-in area about twice the size of a baseball on the top leading edge, probably caused by ice flying off and hitting it." This is routine?

On 1 July 1956, the WV's began their take-offs according to a schedule so similar to that of a railroad, that base personnel began to set their watches by the sound of the *Super-Connies* leaving the deck. That was the beginning of the skyward procession of radar-equipped sentries. Seven days a week, 24 hours a day, the United States was being protected over the vast reaches of the Atlantic against possible surprise attack. Maintaining barrier integrity required many operational "below minimum" take-offs, but GCA minimums were strictly adhered to upon return. Aircraft not able to land because of GCA minimums were diverted to alternate landing fields.

The alternates used were: Torbay, Newfoundland; Gander, Newfoundland; Harmon (formerly Stephenville), Newfoundland; Goose Bay, Newfoundland (formerly Labrador); Greenwood, Nova Scotia; Moncton, New Brunswick; and Sydney, Nova Scotia. Some of the alternates had good facilities and accommodations, but spending a night or even a few hours at others was rough.

Flight crews were flying one out of every five days, and aircraft utilization was running well over 150 hours per month when, on October 1, 1956, Capt. Reed K. Henderson, CO of VW-11, was piped aboard a WV-2 returning to Patuxent River. The squadron was relieved by VW-13, commanded by Captain Otto A. Finley. VW-13 tackled the job of maintaining the barrier immediately. The long winter months of increased turbulence—and what turbulence—heavy icing conditions, and snow, were already underway.

Under the worst flying conditions, VW-13 maintained the Barrier until March 1957, when they were relieved by VW-15, commanded by Capt. C. J. Eastman. During the deployment, VW-13 pilots flew 17,364 hours; the crews made 483 barrier launches. On most of these launches, the weather snarled at the crews.

STATISTICS of this deployment tell a story in themselves. VW-13 planes made 410 GCA approaches under actual instrument conditions. Percentage of instrument take-offs on barrier flights was 11.2%, with a crosswind greater than 25 knots 11.3% of the time. Freezing rain occurred 17% of the five-month-period, and the average ceiling and visibility was 600 feet and 1½ miles. Highest crosswind take-off had a 52-knot component with about 68 knots from 45 degrees off the runway. Highest crosswind landing made had a 45-knot component.

Twenty-three barrier flights had to go to alternates, and a total of 72 hours was spent at the various locations. Icing, from light to heavy, was encountered 61% of the time. Turbulence, varying from light to heavy, rocked the planes during 53% of their flights.

The ramps were so ice-covered that tractors often had to be hitched in tandem to tow the planes. Frequently, that

WRECKED SCHOONER GIVES SOME IDEA OF NEWFOUNDLAND WINDS

wouldn't work either, and the planes had to taxi in under their own power. At times, the wind was so high that gassing was impossible. Crewmen couldn't stand on the ice-covered wings.

Even though the tracks on which the hangar doors moved were heated, there were times when the doors couldn't be opened because the heating system didn't hold up. The frozen doors just had to be thawed out with welding torches. At other times, the doors couldn't be opened for fear high winds might damage the planes inside.

The men, realizing the importance of maintaining the barrier, disregarded personal comfort and convenience to keep the planes flying. For one ten-day period, they worked in the hangar when the inside temperature didn't get above freezing.

On five or six occasions, winds were greater than hurricane force—65 knots or over, but the aircraft kept operating. Once the wind reached a velocity of 96 knots. But the barrier was maintained. Once the schedule was maintained by a plane operating on three engines for about four hours. It took skill and courage.

The normal gross weight at which the planes operated was 142,000 pounds. The 7800 gallons of gas carried weighed about 46,800 pounds. Food had to be carried for the 20 to 26 man crews on their 15 hour flights or longer. The planes were fully equipped with electric stoves and refrigerators needed for long flights.

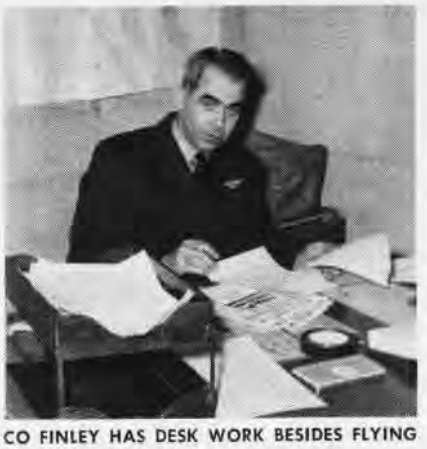
Each crew consisted of a pilot, co-pilot, two navigators, two flight engineers, two CIC officers, two radiomen, one flight orderly, five to six radar men, one radar technician, one electrical technician, two ECM operators, and sometimes a third navigator for training. Frequently, for training, there was a third radio operator, a third pilot, and more radar men.

Food and turbulence is a tricky combination. On one take-off, the flight orderly was stowing a gallon jar of pickled beets. Suddenly the jar fell from the galley shelf, and the orderly just missed catching it. The red fluid—beets, jar and all—rolled down the main aisle between the navigator and radio operator. The radio operator, shocked on seeing the fluid which he thought was either blood or hydraulic fluid, reported it to the pilot. Confusion reigned until an officer identified the substance.

Capt. Joseph C. Clifton, ComBarLant, has other problems not connected necessarily with weather. The personnel and training situation is acute. Normal attrition and replacement of trained men makes an intensive training program essential. VW-13 men worked many hours a day over the normal work-day, because of a shortage in complement.

It is also necessary for all three squadrons to train during the six months deployment at Argentia, as well as during the three month respite at Patuxent River. Because of the length of the flights, pilots don't get to make many landings during deployment. It is hard enough for the plane commanders to keep proficient without letting the co-pilots take over on one of the precious operational landings. Yet co-pilots must be in training to be plane commanders. So it's train, train, train when officers and men are at Patuxent.

LTJG'S W. A. CANN, R. J. KURTH NAVIGATE



CO FINLEY HAS DESK WORK BESIDES FLYING

OPERATIONS, TRAINING, SCHEDULES CONFER

The surface operations of the Atlantic Barrier are fully coordinated with the air section. The DER's must be able to communicate with aircraft at all times. Prompt and effective reporting of contacts often require the use of CW communications, so the ships must have a number of proficient operators for around-the-clock operations. The plane commanders are in close touch with the DER problems and emit sympathetic phrases as they fly over the rolling, pitching ships on the barrier.

SQUADRONS that form the surface picket line are Commander Escort Squadrons 16 and 17. Their ships rotate around the four designated positions. While one Escort Squadron Commander is in Argentia, at BarLant Headquarters serving as ComSurfBarLant, the other is in Newport, in close contact with ComDesLant. About every six weeks, they change roles. With the object of getting maximum utilization of DER and, at the same time, permitting maximum upkeep, leave and liberty time in port, various picket ship rotation schemes are under study. Many factors must be taken into account.

A similar operation to the Atlantic Wing guards the Pacific reaches. The *Super Connies* fly out of Alaska, Honolulu and Midway. The giant planes do a hard job well. The squadrons exist for one reason, that of keeping guard for the United States against surprise aerial attack.

The officers and men of Airborne Early Warning Squadron have "the spirit of the Barrier!" So long as these crews of alert, hardy, and trained men keep flying their long patrols, they make more certain our national security.

GRAMPAW PETTIBONE

Russian Roulette, Anyone?

At 1200 feet during climb-out, the RPM dropped and the pilot turned his T-34B back toward the airfield. At 1050 feet the engine quit and the prop froze.

Thinking he had the field made, the pilot lowered the gear at 900 feet and extended flaps just prior to landing. However, the frozen prop created additional drag, increasing the aircraft glide angle sufficiently to cause touchdown 135 feet short of the airstrip. The aircraft made an uneventful rollout on the runway.

Engine failure was caused by oil starvation which occurred when a bolt from the oil tank was pumped into the oil line, clogging it at a 90-degree elbow. Bolts from an oil tank inspection plate had been removed and placed in the oil tank for *safekeeping* pending the arrival of a new part. Following installation of the new part, new bolts were used in replacement of the oil tank inspection plate and the old bolts were left in the tank.

Grampaw Pettibone Says:

This pilot coulda got kilt and if I'd been in his shoes, I think I'd have started looking for the joker who needed a few pointers on *safe* methods of inspection plate bolt control.

Some squadrons have licked this loose hardware hazard by always placing bolts, nuts, washers, and screws in small cheesecloth bags immediately after removal from an inspection plate, drawstringing the container, and tying it to one of the bolt holes or otherwise identifying the contents. Whatever the safekeeping method, obviously it should *not* be one capable of creating a hazardous condition. Leaving bolts in oil tanks is too much akin to Russian roulette.

Just Like Clockwork

The *Cougar's* cockpit filled with smoke as the aircraft passed through 600-700 feet actual altitude. Both wingmen observed flame extending from the tailpipe in a 30 to 40 foot stream and advised the flight leader to eject.

In the pilot's words, "I reduced throttle to idle and waited patiently for a chance to ask if the fire had gone out. The cockpit was still full of smoke, and both wingmen were still advising me that I was on fire. My TPT was indicating 400 degrees; the engine was stabilizing at idle. Since the smoke had not dissipated and my wingmen were still viewing my condition with alarm, I elected to eject. Airspeed was approximately 250 knots, altitude 1000 feet above ground, and the aircraft was trimmed for a slight climb in order to facilitate ejection."

Having made his decision, the pilot leaned forward in the cockpit and actuated the pre-ejection lever, thereby jettisoning the canopy and arming the seat. Positioning himself in the seat and placing his feet in the stirrups, he reached up for the face curtain with both hands and ejected. The aircraft was at 1000-1500 feet actual altitude, airspeed about 250 knots, and nose attitude 10 degrees above the horizon.

Releasing the face curtain, the pilot was not aware of any appreciable wind blast. He reached down to unfasten the seat belt, but it had automatically released and he found himself clear of the seat with no effort on his part. He immediately pulled the ripcord and the parachute fully opened at approximately 800-1000 feet actual altitude.

The aircraft accident board concluded that the primary cause of the accident was a material failure in the fuel system.

Grampaw Pettibone Says:

This pilot had 1100 total flight hours with 162 hours in the Cougar. When parting company with his aircraft became necessary, he knew what to do and the whole procedure went off like clockwork. The worst he got out of it was a slightly sore tailbone.

The point is, it *can* be done, and your chances are best with the airplane in a nose-high attitude. The Naval Aviation Safety Center recently published a poster entitled "Ejecting at 1,000"—a good method of spreading the word. Have you seen this poster?

Look to the Locking

The following statement appeared in the Medical Officers Report covering an R4D-8 accident in which the aircraft veered off the runway, sustaining overhaul damage: "Recommendation: Pilots should wear shoulder harness locked when landing or taking off."

Elementary, sure, but it's another reminder that you can get killed just as dead in a Gooney or Beech as in anything else. Further, it's spelled out in OpNav Instruction 3710.7A which carries a mandatory message concerning shoulder harness. Paragraph 3.a. of section VI states in part:

"Each person's safety belt and shoulder harness shall be worn and tightened prior to take-off and shall be continued in use until the completion of the flight, except when necessary activities require temporary removal. Inertia reels, where provided, shall be manually locked for all take-offs and landings and at all other times when high [G's] may be encountered."

★★★ ★

Understatement of the Month:

It wasn't until I had landed wheels up that I realized I had forgotten and failed to put my wheels down.

★ ★★★

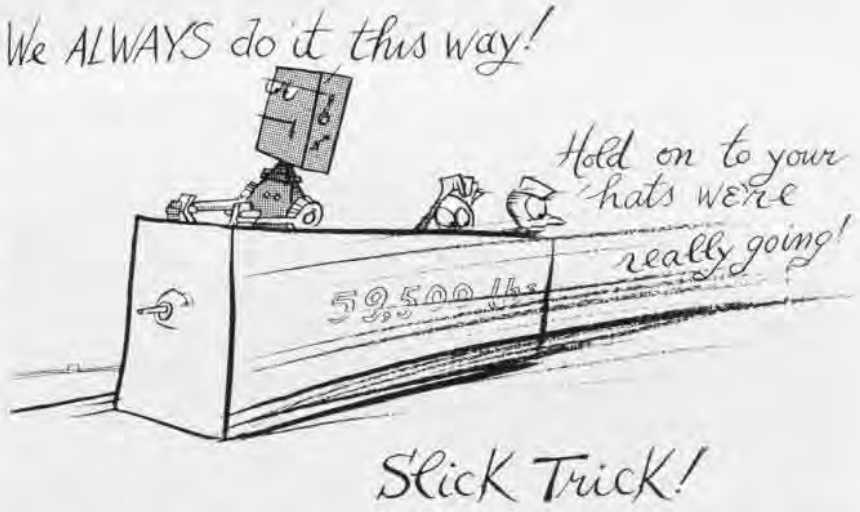
That Old Handwriting

In late January, a P2V-5F arrived over its destination following a four and one-half hour flight, the last three hours of which was flown under actual instrument conditions.

Clearance was given for a standard ADF approach and the tower advised the pilot of the following conditions: surface wind 150° at eight to 12 knots; runway covered with thin layer of slush on sanded ice; and braking action medium to good.

The aircraft broke out of the overcast at 800-900 feet, whereupon the pilot was granted his request for clearance to execute a low visibility approach to runway 19. However, this approach was discontinued on base leg owing to restricted visibility in a snow shower which blanked out visual contact with the runway.

The pilot was cleared for a second low visibility approach to runway 19 but again the approach had to be broken off. He then requested a downwind landing on runway 01. The tower approved with instruction to "maintain visual all the time and make a short approach."



A low visibility approach was made with the 59,500-pound *Neptune* rolling out on final at 500 feet with 130 knots indicated airspeed and with flaps at 20°. The airplane crossed the runway boundary at 50 feet with 120-125 knots indicated, flaps still at 20°, and touched down 3,200 feet up the runway. The remaining 2,700 feet of icy runway was insufficient for stopping purposes in spite of the immediate use of full reverse pitch and brakes.

The props were taken out of reverse pitch momentarily to enable the pilot to regain forward visibility which had been lost by blowing snow kicked up by prop reversal, but full reverse pitch was immediately reapplied.

The P2V ran off the end of the runway, tobogganed down a steep incline for 400 feet, went through a snow bank, knocked down some runway approach lights, continued across an ice-covered ramp and crashed through a wooden hangar's closed doors, collided with a civilian aircraft parked inside the hangar and then caught fire.

All members of the crew were in ditching stations throughout the fiasco and were unhurt except for two crewmen who received slight injuries incident to leaving the aircraft after it finally came to rest.

Grampaw Pettibone Says:

There's little doubt that the tower's report of "medium to good" braking action was overly optimistic and may have influenced the pilot, but its pretty obvious that the pilot failed to appreciate the hazards of landing *downwind*, long, fast and with only partial flaps on an icy runway. Even after touching down—at 100 knots—he could have made it a touch-and-go in order to try for a slower, shorter, upwind, full-flap landing.

The pilot had 1,860 total flight hours—all but 350 of it in P2V's! But here's the rub: the approach speeds and flap setting used on this landing were the same as those he normally used for landings at Keflavik, Iceland at heavier gross weights (owing to fuel requirement for proceeding to alternate airfield at Prestwick, Scotland) and often under gusty crosswind conditions. Standardized procedures are fine up to a point but they shouldn't leave a guy in a rut.

The handwriting on the wall came in loud and clear for the tower operator if not for the pilot for he hit the crash alarm before the aircraft touched down, and the fire trucks were on the way. Prior to touchdown he advised the pilot to go around, but no wave-off attempt was made because the pilot was confident he could stop on the runway.

Every landing is a separate evolution warranting special attention. "Mechanical flying" just won't do. A pilot worth his salt evaluates the situation concerning aircraft weight, runway length, braking conditions, wind direction and velocity, and then cranks in the proper adjustments to produce the optimum flight pattern, approach altitudes, airspeeds, amount of flaps, etc., to get the job done.

There's no other *right* way, and an airplane driver has to remember this fact to get 'em down (and halted) with the aircraft and crewmen intact.

ZPG-2 SETS ENDURANCE RECORD

THE AIRSHIP IS UNMASTED BY CREWMEN AND GROUND HANDLERS AT SOUTH WEYMOUTH

EARLY IN THE evening of March 4, the ZPG-2, commanded by Cdr. J. R. Hunt, unmasted from the Naval Air Station, South Weymouth, and headed out over the North Atlantic on a lengthy flight. This was an operational mission with the assigned task to test and evaluate the all-weather capability of air ships for use in AEW and ASW defense systems, a project sponsored by the Office of Naval Research.

Eleven days later when the airship with its crew of 14 tied up to the mast at NAS KEY WEST, it had successfully accomplished its mission. The proven performance of the airship established its favorable position as an airborne electronic platform suitable for operation in both ASW and AEW missions.

But it had done much more than that. It had set two new world's endurance and distance records for airships. During its flight over the Atlantic and back, ZPG-2 had remained aloft without refueling, 264 hours, 14 minutes and 18 seconds, and had traveled a distance of 8216 miles.

The previous endurance record of 200 hours and 12 minutes was set in 1954 by an airship of the same type, commanded by Capt. (then Cdr.) Marion H. Eppes. The distance record, now shattered by the South Weymouth blimp, was that of 6980 miles, established in 1929 by the Graf Zeppelin.

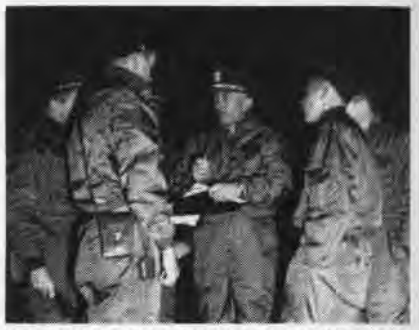
ZPG-2 had also made the first nonstop round trip flight over the Atlantic Ocean between the U. S., Europe and Africa by a lighter-than-air vehicle.

This transoceanic flight, a culmination of many months of planning and training by the South Weymouth Naval Air Development Unit commanded by Cdr. R. H. Hoel, was the second phase in the ONR-sponsored tests. First phase had begun in the fall of '56, and had continued right up to the time the airship took off. Every week during this time the unit made a 30-hour flight in the worst weather they could find, seeking data on airship all-weather capabilities, and performance under very adverse conditions.

The primary phase in the testing program had continued with another stringent task. From January 14 to 25, 1957, ZPG-2 from South Weymouth and ZPG-2W from NAS LAKEHURST maintained a Barrier Station approximately 200 miles off the Atlantic coastline for 10 consecutive days. Under weather conditions said to be the worst in 75 years, each of the five airships used in the exercise remained on station in a fully operational condition with all electrical and electronic gear operating for 24 hours before being relieved. Each flight was a minimum of 40 hours long. Added to the 24-hour tour on station was the time required by the airships to reach the position, a point half way between the Lakehurst and South Weymouth bases. All types of weather conditions including icing, snow, sleet, rain, fog and high winds were encountered without an incident.

As part of the intensive planning for the long flight, every day for 80 days prior to take-off, navigators plotted the flight on paper. Each day's position and fuel consumption, based on weather predictions, was checked the following day against the actual weather conditions and operating requirements. The crew felt that the actual flight was "old hat," the routine 81st one, 80 having been made already on paper.

To eliminate any appearance of having picked good weather for the flight, Cdr. Hoel set the date three weeks in advance of the departure on 4 March. Heading eastward over the Atlantic,



CDR. HUNT BRIEFS CREW ON FLIGHT CHART

the airship passed the Azores early in the morning of March 6. The next two days, Portugal fell behind, and then the coast of Africa. Taking advantage of the trade winds in the South Atlantic, the airship cruised westward on one engine, resulting in a considerable saving of fuel. This brought the average consumption to eight gallons per hour.

At Key West an impressive reception committee, headed by Fleet Admiral W. F. Halsey and RAdm. F. N. Kivette, awaited the ZPG-2 and its crewmembers. In ceremonies at the Air Station, Adm. Halsey presented a Distinguished Flying Cross to Cdr. Hunt, awarded for his achievement on the flight. Adm. Kivette presented to each crew member a citation letter from the Chief of Naval Operations.

This flight, the latest development in the testing and evaluation of all-weather operation of the ZPG-2 airship, has yielded new accomplishments in the Navy's continual striving toward better weapons for our defense.

SKYWARRIOR PROVES A CHAMPION

TWO TRANSCONTINENTAL speed records were eclipsed 21 March when a Navy A3D-1 *Skywarrior* completed a round trip Los Angeles-New York flight in a total elapsed time of nine hours, 35 minutes, 48 seconds.

This clipped one hour and 45 minutes off the existing cross-country round trip record and bettered the East-West record by ten minutes.

RHINE PUTS INITIALS ON FUEL TANK SEALS

SMILES OF BAUM, COX AND BUTTS INDICATE THEIR CONFIDENCE BEFORE THE FLIGHT

Piloting the aircraft was Cdr. Dale W. Cox, Jr. The other two crew members were Lt. Russell H. Baum, USN, and TSgt. Robert L. Butts, USMC. At NATC PATUXENT RIVER, Cdr. Cox is project pilot for Project AROWA, Navy's long-range program to learn more about upper air winds—the jet stream. Cdr. Cox has made dozens of cross-country flights in the A3D to help ascertain jet stream activity.

Lt. Baum was also stationed at NATC PATUXENT RIVER where he is a pilot in the Service Test Division. TSgt. Butts is also on duty in the same division. He was the first Marine to qualify as plane captain on the A3D.

The twin-jet attack bomber left Los Angeles International Airport at 9:11:51.2 A.M. (Pacific Standard Time) and reached Floyd Bennett Field, New York, at 1:11:06.4 P.M. (PST), a total of 2445.9 statute miles in three hours, 59 minutes and 15.2 seconds.

This was 15 minutes and 1.4 seconds short of the existing West-East record of three hours, 44 minutes, 53 seconds established by an Air Force F-84F Republic *Thunderstreak* in March 1955.

NAA TIMERS CHECK THEIR STOP WATCHES

After a 21-minute refueling stop at Floyd Bennett Field, the *Skywarrior* was airborne at 1:32:41.4 P.M. (PST) and returned in five hours, 14 minutes, 57.6 seconds at Los Angeles International Airport at 6:47:39.2 P.M. (PST), a total round trip distance of 4,891.8 statute miles.

This broke the present East-West transcontinental record of five hours, 24 minutes, and 26 seconds, set by an F-86A Air National Guard *Sabre Jet* in May 1955. The previous round trip transcontinental speed record was 11 hours, 18 minutes, and 27 seconds, set by the same aircraft piloted by Lt. John M. Conroy, USANG.

The National Aeronautic Association posted timers in both Los Angeles and New York, who were equipped with stop watches registering hundredths of a second. The official timer, Bert Rhine, was assisted by Albert M. Chop and Bert Lockwood.

Although designed with nuclear bombing capabilities, the A3D is versatile and can be used for many other missions. Its arrangement is such that it can carry almost any of the weapons in the U. S. Navy's arsenal.

A3D TAKES OFF ON RECORD-MAKING FLIGHT

AVIATORS 'LINE OFFICERS PLUS'

NAVAL AVIATORS are going to find their scope of assignments expanded with the implementation of OPNAV Instruction 1301.3. More senior officers of the aeronautical organization are to be made available for the broader administrative and staff assignments not strictly and technically aviation. In this way it is planned to use the knowledge and experience of senior Naval Aviators on high levels of administration and planning.

In interpreting the Instruction, VAdm. William V. Davis, DCNO(Air) emphasizes that Naval Aviators are "line officers plus." Commenting on the fact that this Instruction will put increasing numbers of senior aviation officers in influential billets throughout the Naval Establishment, the Admiral said, "I can recall when a certain Navy pilot of my acquaintance was described as 'an excellent officer above 6000 feet who should never be permitted below 6000 feet.' These days are gone. Today's Naval Aviator is able to weld aviation, seamanship and administrative talents into the planning and operational capability which will make the most of the air-sea power combination."

As part of the new policy, Op. 54, OpNav's Aviation Personnel Division, is moving from the Pentagon to nearby Arlington Annex where it will be part of the Bureau of Naval Personnel. It will make assignments that reflect the increasing importance and versatility of aviation, as well as the increasing number of aviators in the ranks of Commander and Captain who are equipped to contribute significantly to Navy progress at policy levels.

This was pointed up by VAdm. Davis' comment: "When we announced that more senior billets in the Navy Department and other activities would be filled by Naval Aviators, we were, in effect, saying two things. First, the aviation knowledge of our present senior aviators is required today in the planning and administration of Navy-wide activities. The airplane itself has not only increased in size, performance and numbers, but it has also been adapted to a greatly increased number of missions which touch almost every facet of naval activity.

"The integration of aviation into so many of the Navy's operations generates a particular demand for planners and administrators whose knowledge of air power is complemented by ability and experience in the other vital aspects of seapower.

"Second, our junior aviators are put on notice that pilot ability alone will not be enough to meet the demands of the Navy of the future."

Junior aviators are presently finding themselves not limited simply to assignments to the air groups or air departments of aircraft carriers, and other aviation ships. They are being assigned to other departments, part of ship's company: gunnery, communications, first lieutenant, navigation, operations and CIC. Their versatility is going to be encouraged.

Speaking of this trend, VAdm. Davis said, "Each Naval Aviator must make each of his assignments aboard ship, in school, and behind a desk, contribute to his development as a versatile naval officer capable in both naval warfare planning and the operational direction of the combat potential of air-sea power. The future will continue to require senior aviators with broad planning, administrative, and seagoing backgrounds, and our junior officers must be preparing themselves to assume important billets as 'line officers plus.'"

THE SIGHT OF THIS *stubby little converted FM2 Wildcat parked among sleek jets on the Operations Flight Line at NAS Jacksonville caused many double-takes. It is owned by Al Whiteside, of Jacksonville, who had it modified to carry five persons. Weather forced it to land at the NAS.*

Safety Award to HMR-262

Plaque Presented by MGen. McCaul

In ceremonies at MCAF NEW RIVER, MGen. Verne J. McCaul, Commanding General, Aircraft, FMFLant, presented the CNO Aviation Safety Award to HMR-262. The bronze plaque was accepted on behalf of the squadron members by their CO, LCol. W. G. Voss.

The award was for fiscal year 1956, during which the squadron took part in extensive copter rescue work in Connecticut floods. It also helped during floods occurring at Tampico, Mexico.

LT. T. E. DAVIS *(L), new member of VF-101, based at NAS Cecil Field, gets checked out in the F4D Skyray. Tutor is his former student at Barin Field, Ltjg. C. M. Milum.*

Step Toward CVAN Taken

Westinghouse Awarded Big Contract

Westinghouse Electric Corporation, Essington, Pennsylvania, has obtained a contract to manufacture the main steam propulsion machinery for the nuclear - powered aircraft carrier (CVAN). The contract includes turbines, gears, condensers, and associated machinery, with a fixed price of $8,170,060.

Authority and funds for advance procurement of components for the nuclear-powered carrier were included in the appropriation of the Navy's 1957 fiscal year shipbuilding program.

LCDR. CURTIS (LEFT) AND LT. SPEED RE-HASH FLYING PROBLEM

R4D FLOWN BY SHINN IS READIED FOR A SOUTH POLE FLIGHT

OLD MEN, OLD PLANES, NEW LAND

By J. E. Oglesby, JOC

OLD MEN flew old airplanes to new heights during *Deepfreeze II.* Not new altitudes—mind you—certainly not new speed records, but to new horizons, new experiences and often to completely new destinations! They flew in faithful old Douglas R4D's which first entered Naval Service more than twenty years ago.

LCdr. Conrad Shinn executed the most publicized feat of the operation when on October 31, 1956 he made the first landing in history at the geographic South Pole. But the Old Men of this story are the ones that flew out of Little America: LCdr. Roy Curtis who walked into a recruiting office 21 years ago and found a home; Lt. Harvey Speed, a relative newcomer with only 16 years in Naval Aviation, and LCdr. Edward Frankiewicz, an employee of Pan American Airways prior to being commissioned an ensign 14 years ago.

Each flew R4D's from Little America's Kiel Field which sits atop the 800-foot-thick Ross Ice Barrier and is one of the most unusual airports under the United States ensign. The planes they flew have been on the Navy rolls, active or inactive, since the second year of World War II.

Sometimes the Old Men knew just where they were going and what the landing strip would be like when they got there. Other times they weren't sure just where they were going nor what lay at the end of their flight. When they left Little America to fly important supplies or parts, or fuel out to a trail party blazing a safe trail through a path of crevasses, or to a tractor train dragging a science base in sleds across 644 miles of snow, they were more than likely going to set their ski-equipped R4D down where man had never set foot before.

Their cargoes covered a wide range. Sometimes it was dynamite. Other times, it was fresh fruit and weasel treads. Often it was mail and men. And most of the time, it was diesel fuel for tractors.

Their mission was to do any job required in support of trail parties beyond range or load capacity of single-engine *Otters* and helicopters.

Lt. Speed began by flying seven long-range reconnaissance hops to find the best general route for a tractor party from Little America to the site of Byrd Station, an intended science base at 80° South, 120° West. He flew observers who scanned and re-scanned 211,000 square miles of snow looking for flaws, called crevasses, that could be filled or detoured by a surface trail blazing crew.

Once the best general route was found, he began flying specific "boxes" in areas of known or suspected crevasses to find the line of least resistance through danger areas. LCdr. Frankiewicz flew some of these special hops.

Once the trail party put out from Little America, Lt. Speed's recon hops continued, but he began making ski-landings on the ice wherever the trail party might find itself in need of parts or supplies.

During this first phase of trail operations, LCdr. Curtis, LCdr. Shinn, and LCdr. Frankiewicz were flying from McMurdo Sound, helping establish Beardmore Station. Then they landed men, food, supplies and dogs at the Pole itself.

But by the time the advance trail party had bridged the worst crevasses between Little America and Byrd Station, the first team at Little America was Speed and Curtis.

In order of importance their jobs were to fly 4000 pounds of explosives to the crevasse area; 4000 gallons of tractor fuel to the 250-mile point on the trail and pump the fuel into 3000-gallon tanks for the advance party.

When the tractor train carrying Byrd Station building materials put out from Little America December 5 in six large tractors and a weasel, the old-timers really had a milk run on their hands. They had to fly 5000 gallons of tractor fuel to the 250-mile point on the trail before the train got there. Flying 800 gallons per trip, they made it with time to spare, only to see the fuel tanks flatten as tractors sucked them dry.

Next came a taller order: Fly *8000* gallons to the same spot to refuel both

PRE-HEATERS ARE USED TO WARM R4D ENGINES AT MCMURDO STRIP

CREWMEN LOAD JATO BOTTLES ON R4D BEFORE PLANE TAKES OFF

the advance party and the tractor train on their return trip. But their milk run didn't last.

Weather began to blow foul. And you've never seen foul flying weather until you've seen foul Antarctic flying weather with its white-outs and blowing snow, where the only color is white no matter which way you look.

A pilot can take off from Little America with a clear sky and unlimited visibility only to find the fuel dump, 250 miles away, socked in completely. In that case he has two options: Return to base or sit down in the soup. Odds are, you'd return to base like the Op Plan says, but sometimes the base is also socked in. So you elect to set her down.

"In this case," say our first team fliers, "you keep your descent to less than 200 feet per minute as if you were landing a seaplane on water. Then when you hear the crunch of metal skies against ice, you cut her."

Several landings were made using this technique. Pilots never know if they were landing on level snow, depressions or mounds.

Another headache, one that caused Lt. Speed and his crew to spend a night on the trail, was freezing skis. Sometimes the polyethelene, a plastic-like covering applied to the skis to lessen adhesion to the ice, cracks. This puts metal in direct contact with ice and there is no more solid a marriage in all of physics. Other times the snow is just naturally ornery — soft, sluggish, wet and very sticky to take off from.

Lt. Speed faced a combination of the two—broken polyethelene and sticky snow after he delivered fuel to the trail cache. He gunned his engine to the maximum and got no movement. He bounced his tail and still no movement. He lifted his wings alternately with no better success. His crewmen shoveled the skis free but immediately they re-froze. So he spent the night on the trail.

Meantime, weather had Little America socked in. LCdr. Curtis knew Lt. Speed's plight and had left word for the duty radioman to inform him immediately of any break in the weather, then he turned in. Next morning the report came in by voice:

"Weather CAVU (ceiling and visibility unlimited)."

Unfortunately, the radioman wasn't hep to this airdale lingo for he called LCdr. Curtis and reported, "Weather SNAFU." So LCdr. Curtis awaited the weather break in comfort while Lt. Speed and his crew dug into their emergency rations.

When the misunderstanding was corrected, LCdr. Curtis flew out enough JATO bottles to allow Lt. Speed literally to blast off from the snow and return to Kiel Field for a new pair of skis.

Periodically the R4D's in the Little

DIESEL FUEL IS PIPED INTO 800-GALLON, SLED-MOUNTED TANKS

GCA UNIT PUT ON GO-DEVIL SLED FOR TOWING TO SEA-ICE STRIP

America detachment got orders to rejoin their squadron at McMurdo Sound 400 miles away. Sometimes the mission was a passenger shuttle to Beardmore or the Pole. Other times it was priority cargo of a delicate nature that didn't adapt itself to airdrop. In all, the R4D's and two newly-arrived P2V-7's made 19 landings at the Pole with men, dogs and equipment. But at least two of the R4D's remained at Little America, with its constant need for trail party support.

The tired old R4D's are ideal for trail work. They had special cabin tanks that had been installed for the 2250-mile fly-in from New Zealand which proved adequate for caching fuel on the trail between Little America and Marie Byrd Land.

Every airman flying in Antarctica earns his flight skins, and thrills are a dime a dozen. But old BUNO 12418, "Que Sera Sera," has had more than its share. First to land on the 9,200-foot elevation of the Polar plateau, the same plane was first to land at Byrd Station with its 5150-foot altitude. The Pole landing by LCdr. Shinn was marked by minus 58° temperature and the usual take-off complications.

The Byrd Station landing provided its thrills on landing. Midway out from Little America, Lt. Speed had flown through perfect weather. Then while he was in flight, weather settled in on the embyro Byrd station. With no apparent reason, a smoke-like fog, actually copperish in color, rolled in before the plane arrived.

So once more Lt. Speed made a seaplane landing in the soup alongside the tractors which were nearly invisible from the air. And once more he found himself marooned.

Weather had closed in at Little America. He was ordered to wait it out. Next morning it was still so soupy at Byrd Station that he had to navigate by radar bearings on fuel drums placed on top of snow cairns at 20-mile intervals on the trail.

After many, many more "uneventful" flights into Marie Byrd Land, the R4D's were called to fly the remaining scientists to the South Pole.

Flights made for Operation *Deep-freeze* called forth the best in pilots—their skill, ingenuity and bravery.

Lt. Speed had made the last flight when he took off February 21 to return to base. Two hours airborne, he noted a sudden oil pressure drop and observed a bad oil leak which drenched his port engine housing. Below him, the terrain was mountainous. He began to lose altitude.

His navigator gave him a new heading which would take him to level terrain. Having fired all 15 of his JATO bottles on take-off from the pole, he was reluctant to set down while still on the plateau but there was nothing else to do.

Plane Captain William S. Miles, ADC, began working on the ailing engine in the minus 27-degree cold. After three hours work with his hands soaked with the grimy oil, Miles robbed oil from the good engine to replace that lost from the port engine and reported the plane ready for flight.

Lt. Speed raced across the virgin snow with his power settings at maximum and became airborne without jet assist. Byrd Station was secure and the last Pole landing of the season was on the record.

After that experience you'd think a man would decide he'd had enough. But not hale, happy Lt. Harvey Speed. He's wintering over at Little America now, ready for search and rescue duty.

COLD AND SNOWY IT MAY BE, BUT IT'S A WELCOME VIEW TO THE CREW RETURNING TO LITTLE AMERICA FIVE FROM TRAIL SUPPORT

A4D WING PROVES RUGGED

RUGGEDNESS of the Douglas A4D *Skyhawk's* wing structure was demonstrated during the exacting 1000-cycle, repeated-load test required by Navy for wing designs having integral fuel tanks. On the first attempt, the test was completed without a leak or structural failure.

The bantam bomber, designed and built by Douglas Aircraft's El Segundo Division, is about one third the weight of others having equal speed, range and bomb-carrying capabilities.

A carrier bomber of extremely light weight, such as the A4D, is practicable only if the entire wing can be utilized as a fuel tank. While such wings are not new, the 15,000-pound A4D is believed to be the first in which the entire wing serves as a tank. The big problem in any integral tank design is how to achieve fuel-tight security that can be maintained under the constant flexing of heavy operational flight loads.

Engineers approach the dynamic 1000 cycle test with tense emotions because of its repeated-load nature, cycling from no load to 85% of the design limit load. This is 5.9 G's in the case of the A4D. A specimen wing is mounted in the test jig to attach points duplicating those of the fuselage.

The integral tank is filled with dyed water to which a detergent is added to make the surface tension similar to fuel. Inspections are made after 1, 10, 50, 500 and 1000 cycles. A leak that develops is allowed to be repaired, but then the 1000 cycles must be started over. Any stubborn leak that resists a fix can make tank, or wing, redesign necessary. It is considered to be the toughest test in the specifications' book.

In effect, the tank test becomes a general dynamic test of the complete wing structure. In addition to the tank springing leaks, it is not unusual for a wing to pop rivets, buckle skin, bend ribs and even deform the main spars. It is a test not otherwise required except in the case of wings with integral fuel tanks. The comparable static test of a wing structure is a single loading to 150% of the design limit load—10.5 G's for the A4D. It is a matter of opinion, a toss-up among engineers, as to which test is harder.

The A4D 1000 cycle test can be rated as of greater severity because of the choice made by El Segundo engineers. The critical load condition for the low-aspect-ratio wing's forward area differed from that of the rear spar. In order to attain 85% of the critical load on the rear spar, the forward area had to be loaded up to 90% for a single test, or else run the wing through a second time for 1000 cycles. The engineers chose the hard way, one test with the forward loads going to 90% of the design limit load, or 6.3 g's.

The A4D completed the 1000 cycle test successfully. The design of the A4D wing proved structurally sound.

RUSSELL *Daniels, HMC, waits for his daughter, Wanda, SN, FAETU Legal Office, NAS Norfolk, to finish work. Then out to celebrate his retirement after 33 years of service!*

SKYRAIDER PILOT, *Lt. A. H. Bloom of VMA-324 at Miami, explains to Robert and Mike Kloak how 100-lb. bombs are detached from the attack bomber's wing during an attack.*

Dr. Hunsaker Honored
NACA Gives Him its High Award

The National Advisory Committee for Aeronautics has presented its highest award, the Distinguished Service Medal, to Dr. Jerome C. Hunsaker, member and former chairman of the Committee. The presentation was made at a meeting of the Committee in Washington, D. C.

Dr. Hunsaker, who was a member of the Committee in 1922-23 and who has been a member since 1938, was chairman from 1941 until October 17, 1956, when he declined renomination as chairman and was succeeded by Dr. James H. Doolittle.

The NACA cited him for "service of fundamental significance to aeronautical science, climaxed by an outstanding and unparalleled record of leadership during the past 15 years."

The citation noted that during his tour as chairman, the NACA modernized an existing laboratory and established two new research centers, and two field stations. It hailed his leadership in formulation of the Unitary Wind Tunnel Plan approved by the Congress.

Naval Officers Note
Division Officer's Guide Revised

The *Division Officer's Guide*, standard handbook of particular interest to junior officers, concerning personal leadership of enlisted men, has been published in a new and revised edition by the U. S. Naval Institute.

Nearly double the size of the first edition, the new book reflects the increasing complexity of the Navy. It stresses the division officer's vital and expanding functions.

The author, Capt. J. V. Noel, has replaced obsolete materials with the latest word from the responsible offices within the Department of the Navy.

VF-22 Trains at Key West
Logs 600 Hours in Four Weeks

The *Cavaliers* of VF-22 made an impressive record in their F2H *Banshees* when they flew 600 hours during a four-week training period.

Based at NAS JACKSONVILLE, the 16 *Cavaliers* completed the entire all-weather course at Key West. Two of these pilots had first to complete a 25-hour familiarization syllabus.

The squadron utilized the Marquesas Key target for day bombing training.

WHEN THE ANGELS MEET A TIGER

CDR. ED HOLLEY, *Ltjg. Bob Rasmussen, Lt. Lefty Schwartz, Lt. Bruce Bagwell (l to r) seem highly pleased with their new F11F-1 Tigers.*

ROBERT H. ITTNER, *ADC, discusses mechanism of the Tiger with Dave Scheuer, Grumman service representative attached to the Blue Angels.*

THE NAVY'S famed *Blue Angels* will soon be flying a new plane. They are trading in their well-known and dependable F9F *Cougars* for another and new Grumman "cat."

The maintenance crew of the *Angels* spent a little over a week at the Peconic River plant, where they were checked out in maintaining and trouble-shooting their new plane, the F11F-1 *Tiger*. During that time, the *Blue Angel* leader, Cdr. Ed Holley, and members Ltjg. Bob Rasmussen and Lts. Lefty Schwartz and Bruce Bagwell also visited the plant for a fast check-out.

You can see from the expressions on the pilots faces what they think of "riding a *Tiger*." They picked up the planes last month and soon will be seen in nation-wide flight demonstrations.

THE BLUE ANGEL *ground crew personnel and Grumman technicians assisting in the check-out pause in their "schoolwork" to pose for a picture with one of the new planes the Angels will fly.*

PAT MURANA, *Grumman instructor for the Tiger, explains its "innards" to some of the enlisted ground crew members of the flight team.*

JIM CARPENTER, *another Grumman instructor, points out intricacies of the hydraulic system. The crew also spent much time in classrooms.*

'Aquabats' Employ Skill

Leyte Anchor Checked by Officers

WISHART AND FARWELL READY FOR WORK

Down in Havana, Cuba, two officers made like frogmen when the anchor of the USS *Leyte* (CVS-32) was thought to be dragging. The executive officer and a communications officer went down and checked the situation first-hand to see what was wrong.

Cdr. A. F. Farwell and Ens. M. J. Wishart, equipped with aqualungs, weights, flippers, knives, masks, rescue packs and a depth gage compass, were lowered into the water from a motor whaleboat. Deep sea diving for fun was now done with a serious purpose.

The anchor was found in 92 feet of water holding well. However, the anchor chain was found to be riding over a ledge where the bottom dropped off abruptly to unknown depths. The fouling of the chain on this ledge gave the impression the anchor was not holding properly.

Three weeks before, the two "aquabats," at the request of the Engineering Department, had inspected the rudder, propellers and "zincs" while the *Leyte* was anchored off the coast of St. Thomas, Virgin Islands, and found them in good condition.

The *Leyte* is making good use of the special talents of the two frogmen.

F8U Maintenance Trainers

First Mobile Unit is Delivered

The Navy has received from Chance Vought the first of two mobile maintenance trainers which will help teach Navy men upkeep on the F8U-1 *Crusaders* when the supersonic dayfighter reaches fleet squadrons.

The first trainer goes to the Naval Air Technical Training Command at Memphis, Tennessee and to the Atlantic Fleet. Later this year a second trainer will go to the Pacific Fleet.

The 14 units in the trainer are designed to teach Navy maintenance personnel and pilots the actual workings of such parts of the *Crusader* as the cockpit, electrical system, landing and arresting gear, fuel systems and engine controls, air conditioning system, wing fold, variable incidence wing and leading edge droop, speed brake and rocket pack, hydraulic power system and electrical power system. Largest is a big three-section surface controls unit which when hooked together measures 23 feet in length.

Wherever possible, the various units

WORKING PARTS OF F8U ELECTRICAL SYSTEM

are made from actual parts of the F8U, so that mechanics can visualize easily what they are working on. The fuel system and engine control stand include engine-indicating systems, so that starts, engine runs and shutdowns can be shown on the panel and the various dial needles move just as they do in the airplane—all this without the noise and heat of an actual engine run.

So that the trainer would represent the latest installations in the *Crusader*, its systems were built the same as those in the No. 30 F8U with all the newest modifications.

Citation to Ordnanceman

Courage and Initiative Praised

Harry W. Gaspar, AO1, a veteran of 14 years of service with the Navy, was awarded a Citation by the Secretary of the Navy at a squadron's captain's inspection. He was presented the citation by his Commanding Officer, Capt. R. G. Dose of VX-3, NAS ATLANTIC CITY.

The award was given for his achievement in aerial flight on the night of 2 September 1955 when VP-8, of which he was then a member, was on a search and rescue mission to aid a Norwegian vessel which was breaking up off the east coast of Iceland. Gaspar relieved the radar watch and directed the pilot in a successful radar approach and letdown to a low altitude in the vicinity of the stranded vessel. He also climbed through the radar well section of the aircraft to the bomb bay, and when the bomb bay doors opened, manually released survival kits which had failed to drop because of a malfunction of the release system.

Gaspar was commended for his outstanding courage, initiative and devotion to duty during the mission.

Conversion to Tankers

Refueling Unit Made for Fighters

Quick conversion of Navy fighters and attack bombers into aerial tankers will be possible with a self-contained refueling unit, according to Douglas Aircraft Company.

Airplanes not required for tanker use can be restored to their normal combat function by removing the unit.

Already flight-tested and in production at the firm's El Segundo division, the torpedo-shaped unit has been se-

STORE CHECKED BEFORE 'BUDDY' MISSION

lected by the Navy for use on the propellor-driven AD *Skyraider* attack bomber and the A4D *Skyhawk*, midget jet bomber.

The Douglas in-flight refueling store is entirely self-sufficient and does not rely on the "mother" plane for its primary power. A compact package just short of 17 feet long, the unit is powered by a ram-air turbine driven by a four-bladed propeller on the nose. Besides the turbine, the refueling store contains hydraulic motors, fuel pump, a flexible hose on a reel, a collapsible drogue and, of course, fuel.

The Douglas refueling store also will extend the endurance of defensive aircraft and permit refueling in emergency situations. Should an aircraft carrier or airfield be fog-bound, for instance, airborne planes could be kept aloft for long periods by refueling.

MARINES ON GUARD DUTY WATCH COPTER DEPART WITH ITS LOAD

HUT TAKES SHAPE QUICKLY AFTER DELIVERY TO TRAINING SITE

MARINES PRACTICE RADAR UNIT AIRLIFT

AIRLIFTING a radar control unit by helicopter was a special exercise carried out by Marine Air Control Squadron Three and Marine Helicopter Squadron 163. Rarely had such an exercise been attempted entirely by helicopters, according to Maj. G. H. Dodenhoff, MACS-3 operations officer.

The maneuver took place ten miles from NAS IWAKUNI. Twenty-two thousand pounds of electronic equipment, radio and radar sets, camping equipment and a mobile "watermelon" hut (the TSQ-5) as well as 13 enlisted men and one officer were airlifted to the five-day camp site.

Two Sikorsky HRS transport helicopters were provided by Marine Helicopter Squadron 163 at NAS OPPAMA.

First Lt. Gerold E. Williams, OinC of the radar control unit, organized the airlift, figured the poundage, assigned personnel their jobs, and upon arrival at the camp site, acted as LSO for the remaining copters.

The temperature read 30° when the unit met for its briefing at 0600 along the runway. Dressed in cold-weather gear and wearing a combat-loaded field marching pack, each man carried his personal weapon, either an M-1, BAR, or a .45 caliber pistol. Ammunition was carried for issue upon arrival at the camp site.

Upon departure from NAS IWAKUNI, the unit was on its own. The problem was conducted so that no outside assistance could be expected except by radio communication and helicopter delivery.

The unit was designated as a self-sufficient communication post, capable of operating independently of the "parent unit." The organization was such that a tactical air control center, a ground control intercept unit, and a complete radar-radio communication set-up were contained in the unit.

The first two copter lifts carried key personnel. Lt. Williams led the first flight, and MSgt. Art. F. Taylor, the second.

Immediately upon the arrival of the third lift, which contained the elements of the watermelon hut, erection of this installation was started. As fast as the helicopters could deliver the equipment, the men assembled the hut, antennas, and components of the electronic equipment.

RADAR 'SWEEPS' ARE PUT IN POSITION

The first copter had left Iwakuni at 0707. Within four hours, the unit's high frequency radio was on the air.

THE LEATHERNECKS weren't surprised to find that delicate electronic equipment had been jiggled too hard and some of the pieces were inoperative. MSgt. W. W. Smith, the squadron's electronics chief, at once set his men to making field repairs. This was a major job, but the radar section went on the air early the next morning.

The men laid out their "company street" and pitched their shelter halves in neat rows. Each man carried one day's "C" rations. The unit's "medical department" was with them: Frederick E. Richardson, HM1, a veteran of the Korean combat.

Describing the entire operation, LCol. William G. Johnson, Commanding Officer of MACS-3, observed: "As far as I'm concerned, the operation was a success. We learned a lot that will help in future operations. The planning and organization of the whole program was outstanding. Special emphasis should be placed on the fine spirit that prevailed. Each man carried out his specialty with admirable efficiency."

Japanese Rescues Pilot
Chops Hole for Airman's Escape

A 45-year-old Japanese employee of the U. S. Navy, Ken Mitsuhashi, was presented a commendation by Cdr. H. T. Danner of VU-5, based at NAS ATSUGI, for his part in the rescue of a Navy jet pilot who crashed near the Mitsuhashi home.

On a training mission, Lt. Don Richmond of VU-5 experienced a partial power failure in his F9F *Panther* and crash-landed in a rice paddy one mile northwest of the naval air station.

Although he received only minor injuries, Lt. Richmond was unable to free himself from the cockpit of his jet because the canopy had jammed when the *Panther* hit the ground. Mr. Ken Mitsuhashi, disregarding his own safety in spite of the danger of fire, climbed up on the plane with an ax

LT. RICHMOND THANKS MR. MITSUHASHI

and chopped a hole in the canopy large enough for Lt. Richmond to make his escape.

Asked by an interpreter what he was thinking of as he made the opening, Mr. Mitsuhashi said, "I couldn't think of anything except to get the pilot out, but still I was really afraid that a fire would break out."

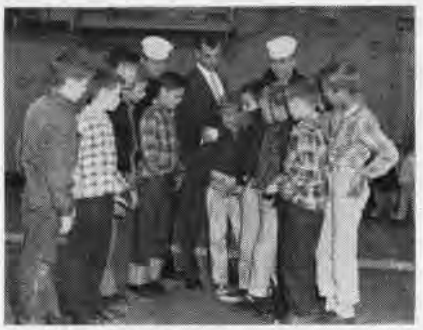
Another Rescue by Copter
Fast Action Taken by HU-2 Team

While aboard the *Leyte*, Lt. Walter P. Carlin, OinC of HU-2's Detachment 51, and Roger T. Daniels, AD2, were in their HUP-2 helicopter on the flight deck in Ready Condition One.

Suddenly a MAYDAY flashed over the radio; a sister helicopter was in trouble and had to ditch in the sea. Because of heavy loads and a broken sling, only one rescue could be affected by the two HO4S helicopters that were accompanying the stricken "bird."

Within minutes of the crash, Lt. Carlin and Daniels were on the scene. While Carlin skillfully kept his copter over the downed aviators, Daniels effected his 6th, 7th, and 8th rescues as he expertly guided three wet but happy men into the copter. They were grateful for the speed of the rescue.

Capt. M. I. Martin, CO of the USS *Leyte*, gave the pilot and his crewman a "Well Done" for their speed and efficiency in doing the rescue job.



JACKSONVILLE BIG *Brothers and Lions Clubs took 375 youngsters on a tour of USS Lake Champlain. A popular "Big Brother" was Don Bessant, Brooklyn Dodgers star pitcher.*

T-28's Leave Saufley Field
Whiting Takes on Tactics Training

Final flight of the T-28's over Saufley Field marked the end of tactics, night flying, instruments, and cross country flights at that station. In line with the recent changes in the training program, the T-28's have gone to Whiting Field, and Saufley Field is now equipped with T-34 *Mentors* instead of the T-28's.

Whiting Field will use the latter as it takes up the training program when NAS SAUFLEY FIELD leaves off.

WINSNES HELPED TO CAR, FORTIN LEFT

Asthma Victim Helped
Missionary is Flown to Yokohama

A U.S. Navy helicopter airlift from the fishing village of Ohara, on the Chiba peninsula to Yokohama has been credited with saving the life of a young Norwegian missionary suffering from an attack of asthma.

The Rev. Samuel Winsnes, 33, of Hamar, Norway, a minister of the Norwegian Missionary Alliance and director of the mission in Ohara, 22 miles east of Oppama across Tokyo Bay, was in a critical condition, and plans had to be made to get him to Yokohama where medicines and an allergist were available.

A member of Winsnes' congregation called NAF OPPAMA and talked to LCdr. George H. Wiggins. Wiggins alerted LCdr. H. E. Fortin in charge of Oppama-based HU-1, Detachment One.

Fortin piloted a Piasecki helicopter and took with him a Navy doctor, Lt. Luman H. Hughes, Jr., and Frank D. Smith, HM3.

The trip to Yokohama was made safely, and the young missionary received the necessary treatment.

NO FLYING DUTCHMAN, *but a fully rigged Norwegian sailing ship, is shown alongside the USS Valley Forge. During "Operation Springboard" in the Caribbean, the carrier, DD Forrest Sherman as well as other ships participated in the making of new Louis de Rochemont "Cinemiracle" production. The Norwegian vessel, Christian Radich, carried the camera crews for the movie.*

OUR FLIGHT DECK HEAVYWEIGHTS

AN A3D SKYWARRIOR *takes off from the USS Shangri-La. Although the plane was designed for complete carrier operation, it is still a heavy plane requiring the big push of steam catapult.*

CARRIER-BASED, high altitude, long range attack bomber squadrons of today had their beginning back in 1948. At that time, VC-5 was commissioned at Moffett Field. Capt. J. T. Hayward was the first skipper of the squadron, which began flying P2V-2 and P2V-3 *Neptunes*. He inaugurated the Navy's first program of long range, carrier-based bombers.

Although the *Neptunes* could be launched from aircraft carriers, they could not land aboard. But the squadron laid the foundations upon which the program has been built to its present efficiency. One of the more famous flights showing the squadron's capabilities occurred when the Executive Officer, Cdr. F. L. Ashworth, was launched from the USS *Midway* at sea off Norfolk and flew across the Caribbean to the Panama Canal, mock-bombed it, then flew over Corpus Christi, and on to San Diego, where he landed. The total elapsed time was 25 hours and 40 minutes. The total distance was 4,880 miles.

In the spring of 1950, North American's AJ-1 *Savage* was accepted by the Navy. It was the first heavy attack aircraft specifically designed for complete carrier operations. Using this plane, detachments were readied for carriers with the Sixth and Seventh Fleets. Since the arrival of those detachments, the AJ's have proven to be capable workers, and they are a familiar sight in all Fleet exercises. A tanker package was developed which enabled the heavy attack squadrons to double as flying gas stations, thus extending the capabilities of other carrier units.

Experiments were made to test the advisability of operating a large carrier with only a heavy attack unit aboard, plus enough interceptor types to provide local protection. The operation proved feasible, but difficulties developed in spotting on hangar and flight deck because of the size of the aircraft. It was apparent that the concept was highly desirable, but that larger carriers were necessary, and that aircraft more easily spotted were mandatory.

The present *Forrestal*-class carriers were designed and produced as a partial answer to the problem. The other half of the answer seems to be contained in the Douglas-built A3D *Skywarrior*, which is now being built in quantity.

AJ-1 SAVAGE *receives a "cut" from the Forrestal's LSO prior to an arrested landing.*

SPEEDY A3D *uses parachute to slow down its landing. Note extended dive flaps on tail.*

VERSATILITY *of AJ-1 is shown as an airborne filling station as it refuels an F9F Cougar.*

With the heavy attack squadrons and the high maneuverability of a fast carrier task force, the U. S. Navy has a potent weapon unequalled in the world. With the advent of the CVAN, or nuclear powered carrier, the combination will be even stronger. If a successful nuclear engine is developed for aircraft, human endurance limits will be just about the only limiting factor in carrier operations.

From the original nucleus, other squadrons have been formed and designated as VAH or Heavy Attack Squadrons. Two wings have been organized, one on each coast. Each wing is charged with supervising the training of subordinate units until their release to a Fleet Commander for Operations. Assignment of these units fully prepared in the tactics of weapons delivery adds considerably to the power of U. S. carrier aviation in both seas.

1911 CHECKERBOARD OF PROGRE

PLANES—On the checkerboard of progress, there were many moves between the first Curtiss ordered 8 May 1911 and today's operational models. One move increased numbers on hand; another, performance and reliability; and yet another, striking power. Naval aircraft today can perform a variety of tasks, employ a variety of tactics and deliver a variety of explosives with devastating effect over wide areas.

ELECTRONICS—Since the first experiments with airborne wireless at Annapolis in 1911, electricity has been adapted to many naval uses. Through radio, airborne radar, sonar, MAD gear, CIC, and other adaptations, naval aviation moved toward greater capability in reconnaissance, close air support, fighter direction, antisubmarine warfare, and the offensive tactics essential to naval tasks in modern war.

TENDERS—On these mother ships, aviation moved to sea as early as 1919. The AV-1 *Wright*, commissioned 16 December 1921, was the predecessor of some 50 tenders supporting patrol plane operations at the end of World War II. Submarines have demonstrated ability in the same role. With tender support, high performance seaplanes can move over the seas to operate in remote areas with and ahead of the Fleet.

GUIDED MISSILES—From tests of a primitive flying bomb in 1916, of target drones in the 1930's, the offensive use of drones and automatic homing missiles in World War II, missile development moved into broader areas toward ballistic missiles and earth satellites. Five fully operational missiles — *Petrel*, *Regulus*, *Terrier*, *Sidewinder*, and *Sparrow* — are potent additions to today's fleet air weapons system.

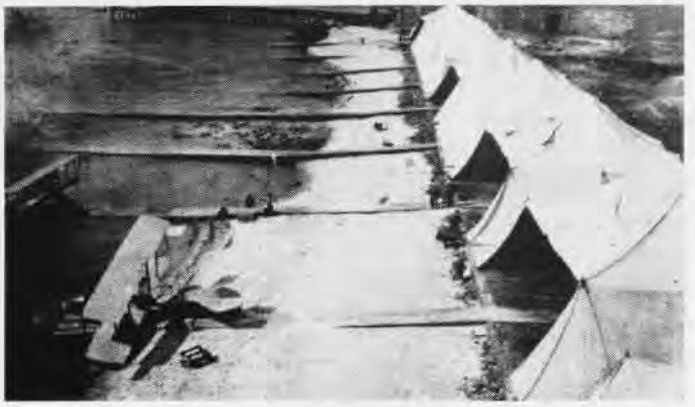
GRESS IN NAVAL AVIATION 1957

CARRIERS—Beginning with the *Langley*, commissioned 20 March 1922, air power moved to sea on a succession of carrier types, most recently of the *Forrestal* class, and soon may move on to nuclear power. Spearhead of the advance across the Pacific, the fast carrier task force acquired ever greater stature and is today a truly mobile, versatile, and impressive array of offensive and defensive sea-air power.

MEN—More than 80,000 men moved along the trail of T. G. Ellyson, first Naval Aviator, ordered to instruction 23 December 1910. Since A. L. Gates, Naval Aviator No. 65 and first pilot of the Naval Reserve Flying Corps, men of the reserve have been on call. In three wars, they moved from civilian pursuits to report for active duty. Men, Regular and Reserve, are the stuff of which naval air power is made.

STATIONS—From humble Greenbury Point in 1911 and Pensacola in 1914, the shore support element moved to points along the coasts, to island outposts, and in war to foreign shores. With Fleet Aviation Centers on both coasts where carriers moor next to fields on which pilots sharpen their specialized skills and entire air groups move on board with dispatch, shore-based support was tied securely to the sea.

CATAPULTS—The basic solution to the problem of taking aviation to sea was the catapult. It was first used successfully 12 November 1912. Its design moved through successive adaptations for different operational uses, and through a series of power sources from compressed air to the present day use of steam, to meet progressively increasing requirements for launching heavier aircraft at increasing speeds.



THE SWINGIN' 'SWEET PEAS'

THIS IS THE 'SWEET PEA' BAND UNDER DIRECTION OF LT. SUROVIK (L, 3RD ROW)

"DIG THAT crazy rhythm! Those boys are real cool." Who rates these compliments? Why, the "Sweet Peas," of course, the USS *Princeton's* band.

Lt. G. A. Surovik, assistant CIC officer aboard the carrier, heard that some of the men were interested in forming a ship's band. Something of a musician himself, he set out to investigate. Responses to his questions were wholehearted and enthusiastic. There was no doubt about it; every self-respecting ship must have a band, and CVS-37 was no exception.

Mr. Surovik, with the help of funds allocated to the ship's welfare and recreation fund, collected a batch of musical instruments, some new and others reconditioned. He also got together a handful of arrangements. Now that they had the men and means, it was time to make with the music.

On 12 December, Mr. Surovik and 17 enlisted men from nearly every division aboard, assembled for their first practice session. There were three trumpets, three trombones, five saxophones, two clarinets, a guitar, bass, piano, drums and bongos. The noises that day might not have been called music, but the musicians were eager.

Just eight days later, the "Sweet Peas" made their public debut at an all-hands dance in Craven Center at the Puget Sound Naval Shipyard. The previous week was filled with hours of hard practice, but it was worth it when the band made the grade. Many of the *Princeton's* crew didn't even know of the band until that night.

Spurred on by a taste of success, the "Sweet Peas" practiced even more earnestly. This involved several hours each day, and weekend sessions which lasted up to ten hours. But band members get no deferential treatment. They perform their regular shipboard duties, stand watches, and carry their share of department work.

The ship's band has now become an integral part of carrier life and the activities of its men. The "Sweet Peas" have played for several dances. They have participated at the Captain's personnel inspection, and during change-of-command ceremonies, when Capt. J. L. Chittenden relieved Capt. W. E. Gallaher as the ship's skipper.

Just stroll up to the hangar deck some evening after chow. Chances are that you'll find the band practicing. Shipmates gather around, and before the evening is over, you'll probably see a good old-fashioned jam session.

Gooney Flight Studied

Wildlife Service Making Checks

Recently three daring gooney birds from Midway Island stepped brazenly out of a Navy P2V from VP-6 and looked about at NAS IWAKUNI. Advance agents of some 3,000,000 of their relatives who inhabit Midway and wage relentless war on the Navy, the trio put on a bold face and kept their noses in the air with great disdain for anyone who might question their presence. Having collected the necessary data, they took off for home before Security Police could raise a finger.

Midway is their ancestral home, and the scientists of the U.S. Fish and Wildlife Service are delivering birds to far-off places and then clocking their return to the islands. In previous tests, never involving such a distance as the 2500 miles between Iwakuni and Midway, the gooneys have averaged 200 miles a day and have landed within four feet of the spot where they were taken into custody. Chances are the Iwakuni "spies" make it home safely.

Lt. E. W. Van Weith, gave his version of the motive behind the study: the replacement of Navy navigators by

GOONEY BIRD AND HIS TRANSPORT CREW

gooney birds. But as his own course plotter, Ltjg. J. V. Edelmon, replied, "Who on earth would want to navigate to one place only, Midway Island?"

Former Shipmates Meet

Franklin Survivors at Pax River

Completely by chance, two men who played a herioc part in the USS *Franklin* disaster, met at Patuxent.

The men were RAdm. Joseph Taylor (Ret.), now a representative of Lockheed Aircraft, and Don Russell, a Chance-Vought representative.

They first met in March 1945 when Adm. Taylor, then a Commander, was executive officer aboard the *Franklin*. Russell was a civilian Chance Vought representative attached to CVG-5.

After the Japanese bomber crashed into the ship, causing tragic damage, Russell remained aboard. For gallant action in helping the wounded and fighting fire, he received the Silver Star. For his part in keeping the ship afloat, Adm. Taylor won the Navy Cross.

'NIGHT OWLS' OF THE FAR EAST

By H. D. Morrow, JO3

JUST WHAT happens on an air station when twilight sets in and lights blink on? Activity continues and this is where the "Night Owls" come in.

When the normal working day ends aboard the Naval Air Station, Atsugi, the stage is set for the "night owls" to man their various duty stations. These men insure the round-the-clock operation of this vital link in Navy air power in the Far East. They man the night shift.

With the setting of the sun behind near-by majestic Mount Fuji, hundreds of electric lights flash on throughout the station. Each illuminated space houses men of many and varied skills, who carry out Atsugi's important mission of providing service to the U.S. Seventh Fleet.

To the casual observer, night time aboard the station is primarily a time of leisure, as the off-duty day workers make their way in groups to the station theatre, snack bar, library, enlisted men's club or, perhaps an athletic contest in the station gym. But a closer look finds a large number of officers and men busy at work with their all-night tasks.

In a FASRon-11 hangar, a sleek Navy F7U *Cutlass* receives an engine check by skilled aviation mechanics. The radar gear of a P2V *Neptune* is gone over by Navy electronics technicians. Air controlmen in the tower keep the air traffic, in and out of the field, flowing smoothly. GCA controlers reassure a pilot flying by instruments that he is on the glide path, in the "groove" leading to the long stretch of black between the bright lights of the Atsugi runway. But flight operations are not the only activity.

SENTRY DUTY *at the main gate of NAS Atsugi can be lonely, especially at night. But the task of insuring the security of the largest Naval Air Station in the Far East is an important one.*

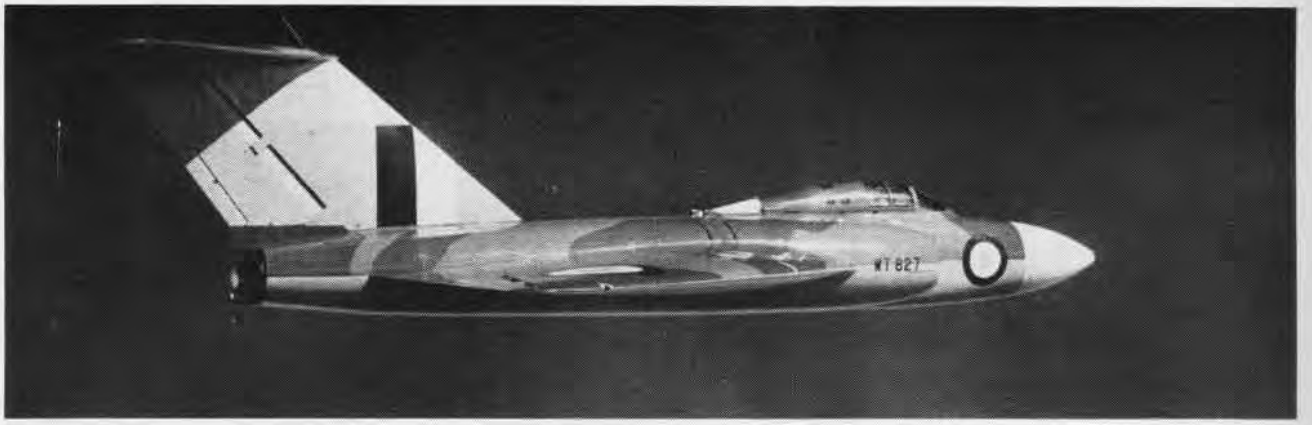
M. SUHR, *AC3, uses emergency Aldis lamp to communicate with plane with radio failure.*

At the main gate, a car is stopped by a spit-and-polish Marine sentry who checks the occupants' identification, then waves it off the station. Another Marine, standing guard over one of the Atsugi magazines, stamps his feet against the evening chill and thinks: "Those lucky so-and-so's with the gate watch!" Then continues his rounds of the area. In the OOD's shack, the 2000 reports start coming in over the telephone reporting that all is secure. Down the passageway, the crackle of radio static and the chatter of teletype machines testify that the communicators are at work with the many messages to and from the commands based aboard.

Knowing that all these men must eat, the duty section in the general mess starts with their preparations for "mid-chow" the midnight meal for the "night owls." And so it goes throughout the night.

These are some of the many jobs that keep Atsugi an ever-active stronghold, providing 24-hour a day support to the Navy in the Western Pacific. This support requires the services, skills, experience of the "night owls."

PERSONNEL *of Air Transport Squadron 23, based aboard NAS Atsugi, work around the clock to keep up with their job of loading and unloading incoming and outgoing Navy transports.*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BRITAIN'S CHALLENGE IN THE SKY

● The Gloster *Javelin* (upper left) is a speedy fighter. This particular delta wing fighter, the third prototype, is powered by two *Sapphires*. Gloster also builds a two-seat trainer in the *Javelin* air frame.

● A covey of Hawker *Hunters* spurns the billowing clouds beneath them. Formation is led by a Mark T.7 two-seater. On its right is a Mark F.4 modified to carry Fairey *Fireflash* guided missiles. Behind are an all-weather development F.6 with wing-tip tanks, a Mark F.6 with four 100-gallon auxiliary tanks, and another Mark F.6 with two auxiliary tanks and 24 three-inch rockets. The *Hunter* is versatile!

● Lower left is the Avro *Vulcan*, a jet bomber which was slow-rolled at Farnborough Air Show last year. This type flew from England to Melbourne, Australia in 23 hours, 15 minutes flying time. Tragically, the first prototype was destroyed in a landing accident at the London Airport after a GCA approach on its return from Australia. The crash wiped out 15 of its 16 main landing gear wheels, but the pilots were saved. On the second prototype of this plane, area was added to the leading edge of the wing to produce a sharper sweepback at the wing tips.

● The two Armstrong Siddeley engines provide tremendous power for the *Javelin* at right. (Pictures courtesy Hawker Siddeley Review.)

SPRING MARKS RESERVE ACTIVITY

THE SPRING season is nature's tonic to mankind. The sight of budding trees, green grass, and yellow jonquils is like a shot in the arm. The Naval Air Reserve program, which goes great guns during all seasons of the year has no need for such a boost. But in spite of this, stations report Naval Air Reserve activities are on the up-swing. What else can it be but spring?

NARF Commissioned

A newly commissioned member of the Naval shore establishment is Naval Air Reserve Facility, Houston, Texas.

The commissioning ceremony, held on 17 February, featured a complete chain of Naval command from airman up through CNO, Adm. Arleigh Burke.

Approximately 400 Houston Reservists and their guests attended the program at Ellington Air Force Base. Among officials present, besides Adm. Burke, were VAdm. A. K. Doyle, CNATra, RAdm. H. H. Caldwell, CNAResTra, and Capt. W. L. Richard, NAS DALLAS CO.

Cdr. F. B. Hopkins is skipper of the newly commissioned Reserve facility.

COMPLETE CHAIN *of flag rank officers, directly concerned with Houston's Naval Air Reserve Facility, begin inspection tour of Weekend Warrior territory with Cdr. Hopkins as their guide.*

VR-812 to Africa

Minneapolis squadron, VR-812, commanded by LCdr. E. H. Speltz, made a two-week safari to Port Lyautey late in February. Upon arrival, the Reserve squadron operated with VR-24, providing logistic support to the Sixth Fleet in the Mediterranean area.

Six hundred pounds of food and clothing, collected in the Twin City area, were airlifted to Vienna to help Hungarian refugees.

During their second over-seas deployment, the Minneapolis *Warriors* had a chance to visit Madrid, Paris, Frankfort, Naples, Rome, and Malta.

Reserve Airman Cited

Capt. R. E. Stieler, NAS ATLANTA skipper, awarded a letter of commendation to James W. Watterson, AD1, for his ingenuity and clear-thinking during a training flight.

Following night landing practice at Donaldson AFB, in Greenville, S. C., Lt. H. F. Carlson, of VP-671, pilot of a P2V, discovered that the nose gear of his craft was in the trail position.

Enroute to Atlanta, plane captain Watterson lowered the nose gear manually in the down and locked position. He did this by cutting a hole in the port side of the wheel well housing. With access to the wheel strut, he tied a line around the scissors. Toggling the emergency hydraulic pump helped move the gear to a near down position. By putting his weight on the scissors, the wheel moved full-down. Next he positioned the gear lock and secured the stiff knee.

The P2V landed without incident.

FORMER FOOTBALL *star at West Virginia U, Bob Moss, went to NAS Columbus to enlist in Navy's flight program. A strapping 204 pounds, he was told to slim down to 186. Columbus Athletic Club took off the final pounds. Capt. Koepke, NAS CO, gave Moss a "well done."*

RADM. C. L. G. EVANS, *RN, and his aide, spent a day at NAS Olathe to study operations of the Jet Transitional Training Unit based there.*

CAPT. THEODORE *Blanchard, Assistant Chief of Staff for Naval Reserve, 3rd ND, gives dual farewell to Cdr. Howard and son, Jack.*

Old 'Friends' at Birmingham

Lt. William Study, NARF BIRMINGHAM maintenance officer, handled transfer orders for the last P4Y at the Reserve facility.

The event has special significance to Study. Back in 1947, as an Ensign at Whiting Field, he flew the same craft in operational flight training. He never expected to see the aircraft again.

It was quite a surprise when P4Y #202 came to the Reserve facility—ten years and two overhauls later.

RN Admiral at Olathe

RAdm. C. L. G. Evans, RN, visited NAS OLATHE to study the training of Navy pilots in swept-wing jet planes.

LT. STUDY *hands pilot ferry orders transferring NAS Birmingham's last P4Y to San Diego.*

The Admiral spent an entire day observing operations of the Jet Transitional Training Unit aboard the station. With the Admiral was his aide, Cdr. G. C. Baldwin, RN.

On hand to welcome the visitors were Capt. B. L. Bailey, Olathe skipper, and other officers of the station.

Father-Son Team

The Third Naval District has lost a father-son Reserve team. Cdr. H. S. Howard, former Reserve coordinator, received orders to the office of CNO. His son, Jack, a former Reservist, began his four year "hitch" in the regular Navy about the same time.

At one time, Cdr. Howard was Mrs. Eleanor Roosevelt's personal pilot.

UNIFICATION WAS *exemplified when Navy, Marine, and Army men from NAS Grosse Ile escorted 2000 children to Shrine Circus at Detroit.*

OFFICERS' WIVES, *of NARTU Lakehurst, conducted their own inspection in March, a test run before logistics inspection by CNAResTra.*

School for R7V 'Know-How'

VR-8's Course Increases Skills

Late in 1955, VR-8's skipper, Capt. A. L. Gurney determined that something should be done about the shortage of men skilled in the maintenance of *Super Constellations*. He decided to establish a school for AD's, AM's and AE's at NAS BARBER'S POINT.

Cdr. Charles F. Duggins was given the responsibility for organizing an accelerated training program. Within a year, it mushroomed from a two-desk to a two-building operation.

Since VR-8 did not have enough men to form the needed classes, VR-7 men were included in the program as well as members of VW units at Barber's Point who also fly *Super Connies*.

The reputation of the school grew and now Air Force personnel from the 1056th Air Terminal Squadron at Clark AF Base in the Philippines attend. These men are responsible for maintaining R7V's transiting Clark Field. Civilian technicians from Wake Island have also attended the school.

The training consists of a six-week period—four weeks in the classroom and two on the job. By using a series of mock-up panels, students are instructed in such things as the R7V fuel systems repair, air cooling and heating equipment, and electrical systems. Flight engineers also use these panels as do pilots, air crewmen, and technicians.

A3D to Whidbey Island

Jet Era Begins at Air Station

When VAH-4 received its first A3D *Skywarrior*, the event marked a new era for NAS WHIDBEY ISLAND.

To accommodate the twin-engine jets, many improvements and new facilities are scheduled. These include the mirror landing system for FCLP, additional navigational aids, lengthening of existing runways, and the construction of a new 10,000-foot strip.

Both OMNI (all-directional radio range) and TACAN (tactical air navigation) are slated for commissioning to supplement present radio navigational aids. A chain-type arresting gear has been completed on existing runways. A Brunswick-type hangar, constructed to house VAH-4, provides the squadron with office, shop, and maintenance spaces.

Other squadrons based at Whidbey: FASRon-112, VAH-10, VP-1, VP-50.

JOHN MILLSAP, *HM1, Oklahoma City recruiter, uses this 1920 truck to deliver "Fly Navy" signs throughout city. Truck was a loan from Mr. Duke Sutterfield, local citizen.*

VMF(AW)-314 Wins Trophy

First in Weapons Meet at Mojave

Top team at the second annual MAW-3 Weapons Meet at MCAAS MOJAVE was VMF(AW)-314, based at MCAS EL TORO.

After taking top honors in the fighter phase (air-to-air), VMF-314 pilots placed second in the attack phase (air-to-ground events).

LCol. H. A. Langstaff, squadron CO, served as his team's captain. His pilot teammates were: Maj. F. C. Kleager, Maj. R. R. St. John, Capt. C. Y. Dodds, Jr., 1/Lt. W. P. Hutchins, and 1/Lt. R. A. Capps.

LCol. H. L. Lantz's VMF-311 finished second in the meet and took top place in the attack phase. Capt. Herb Lundin, of VMF-311, clinched the over-all individual honors by scoring a combined total of 848.25 points in both phases of the competition.

The winning team was scheduled to represent Aircraft, Fleet Marine Force, Pacific, at the Air Weapons Meet at NAAS EL CENTRO, Calif., in April.

WHAT DOES *the "B" stand for after this BuNo? The question was asked of numerous officers who might be likely to know, but didn't. An answer came from BuAer's Maintenance that it signified the plane had received certain necessary modifications and changes.*

New Jet Flight Simulator

Navy and AF Push its Development

Under sponsorship of the Navy and the Air Force, Sylvania Electric Products, Inc. is developing a jet flight simulator with a new electronic brain.

The new trainer, which is to simulate a wide variety of aircraft, including the most recent supersonic fighters, will provide needed additional speed and versatility in ground training devices, according to a Sylvania official. The device is built around a new large-scale digital computer of great flexibility, speed and accuracy. The electronic brain simulates flight by setting appropriate readings on the instruments.

Eventually the computer will be able to solve problems for several cockpits simultaneously, for independent flight, formations and simulated combat.

VAH-3 Completes Carquals

Skywarriors Do Well on the FDR

VAH-3 has operated A3D *Skywarriors* aboard the USS *F. D. Roosevelt* for carrier qualifications. These were the first carrier operations for the squadron, and the first time the powerful seagoing bomber has operated on anything by the *Forrestal*-class carrier. The A3D proved to be an excellent airplane to land aboard, catapult and handle on the flight deck of the *FDR*.

The *Skywarrior* is the largest aircraft ever to operate aboard carriers. An atomic weapon carrier, the A3D is capable of unescorted attacks against enemy naval installations in any part of the world.

Cdr. H. J. Morehouse is VAH-3 CO.

Chapel for Kearsarge

Carrier Given Seagoing Church

The USS *Kearsarge*, with Capt. W. T. Shields as commanding officer, has officially opened its new ship's chapel, prepared during a recent overhaul and modernization of the carrier.

The chapel not only provides space for religious services at any time without interference from other shipboard activities, but it also makes for an atmosphere conducive to worship.

Located one deck beneath the flight deck amidships, the chapel accommodates 42. It occupies a space 12 by 34 feet, formerly used for an arresting gear engine.

Senior chaplain aboard the USS *Kearsarge* (CVA-33) is Cdr. R. McComas.

USS JUPITER, NAVY'S ONLY AVIATION SUPPLY SHIP, REFUELS THE CARRIER 'BONNIE DICK' OFF THE KOREAN COAST IN 1951

USS JUPITER EXCELS IN SERVICE

MEN OF THE USS *Jupiter* regard their ship and its mission with a great deal of pride. The AVS-8 is the only aviation supply ship in the entire Fleet. Based at Yokosuka, it is designed to carry everything a Navy plane would need in the way of spare parts, whether complete airplane wings or engine parts. *Jupiter's* value was overwhelmingly demonstrated during the Korean incident by its efficient logistic support of Fleet aircraft carriers.

AFTER UNLOADING, MEN CLOSE HATCHES

NEW-TYPE SHORING IN JUPITER'S HOLD

CREW PROVIDES ITS OWN ENTERTAINMENT

LET'S LOOK AT THE RECORD

The Same Old Panther
Pilot First Flew It Six Years Ago

Lt. Courtney M. Anderson, flight instructor in ATU-223 at NAAS CHASE FIELD, has accumulated over 1300 hours flying time in the F9F-2 *Panther*. He still flies the same F9F-2 which he had his first familiarization.

LT. ANDERSON POSES WITH BUNO 123694

Anderson logged his first F9F-2 flying time in airplane BuNo. 123694 in February 1951. Two tours with his squadron, VF-23 in Korea, and 140 combat missions increased his knowledge of the *Panther*.

Investigation has revealed that F9F-2 BuNo. 123694 is still finding its way into Lt. Anderson's log book six years after that first familiarization flight. It is now being used to teach jet tactics and weapons delivery to advanced flight students.

A closer look at the records also revealed that seven other planes on the unit line were flown by Lt. Anderson on combat missions over Korea.

VF-74 Qualifies in F4D's
Fleet Unit Flies Delta Wing Plane

VF-74, the "Be-Devilers," successfully qualified aboard the USS *F. D. Roosevelt* in February with the *Skyray*. According to the squadron skipper, Cdr. W. C. Reinhardt, this marks the first time a fleet unit has qualified aboard in a delta wing aircraft.

The first touch-and-go landing was made by LCdr. R. A. Gambrill, USNR.

VF-74 is part of CVG-6 which is commanded by Cdr. D. H. Guinn.

Operation 'Springboard'
VP-45 Sets High Flight Record

During the annual *Springboard* operation, VP-45 set a record by flying 553 operational hours. The record was set with only ten aircraft, instead of the usual twelve.

Springboard, conducted near San Juan, lasted ten days. All seaplane squadrons under ComAirLant took part. Operating aboard the USS *Currituck* (AV-7), an "E" winning seaplane tender, gave each P5M *Marlin* squadron a chance to gear itself to advance seaplane operations.

According to VP-45, the squadron has flown more hours and has maintained a higher monthly aircraft availability than any other seaplane squadron this competitive year. It holds first place for seaplane safety records of ComAirLant and a high reenlistment record.

Based at Naval Station Bermuda, Cdr. E. W. Pollard is CO of VP-45.

DURING AIR-TO-AIR *gunnery competition to determine which ComAirPac teams will go to the Air Weapons Meet at El Centro in April, VF-51, skippered by WW II ace, Cdr. A. Vraciu, shot four-man team average of 37.6%. On banner shown above, Cdr. Vraciu, Lt. O'Connell, Ltjg. Critz hit high average of 49.3%. During deployment a week before, pilot average was 29.3%.*

OBSERVER MAKES CHECK OF OXYGEN GEAR

Record Set at Pensacola
Oxygen Chamber Ups its Business

Low Pressure Chamber #3 at NAS PENSACOLA established a record during the last quarter of 1956. It trained 2369 students even though the final quarter ended early in December 1956.

The increased flow of students was caused by the change in the training pipeline. Formerly, the check-out in the chamber came at the end of the basic program before the student went to advanced training. Now it comes at the beginning of the program after completion of pre-flight.

Cdr. R. E. Luehrs, MC, head of the altitude indoctrination unit, maintains that all students received the entire course without cutting any corners. Five additional inside observers, from various departments in the School of Aviation Medicine, were added to the regular crew.

Arrangements have already been made to give low pressure chamber training to nearly 600 Midshipmen who are to visit Pensacola this summer.

VS-36 Sets a Record
Makes 67,000th Landing on CVA-59

VS-36 claims a record for 18 days of operation from the USS *Forrestal* when it flew S2F *Trackers* a total of 1000 hours, an average of 55 hours a day.

The record flight time of VS-36 was attributed to good weather, good maintenance, and "a lot of luck." The squadron made 21 carrier landings at night and 286 during the day.

One of the last landings made on the carrier was the 67,000th landing on the carrier's deck by Cdr. F. W. Oliver, the new squadron skipper.

FAMED FOR THEIR ABILITY TO FLY IN TIGHT FORMATIONS, HS-50 DID IT FOR KEY WEST PHOTOGRAPHERS LAST PART OF FEBRUARY

CANADIANS TRAIN AT KEY WEST

TWO ROYAL Canadian Navy squadrons have become Florida boosters. Fleeing the wintry blasts of their own north, they went to NAS KEY WEST.

The Royal Canadian Navy Fighter Squadron 870 arrived 31 January with their F2H-3 *Banshees;* and the Royal Canadian Helicopter Squadron Fifty (HS-50) came a few days later.

Thirteen officers and 77 enlisted men of VF-870 took an intensive training course under the auspices of the Fleet All Weather Training Unit, Atlantic Fleet. Before the formation of the squadron in November 1955, they had undergone extensive jet training at United States and Canadian air stations.

At Boca Chica Air Base at Key West, VF-870 studied the all-weather aspect of the *Banshee,* using airborne radar for night interception. After completing its training, the squadron returned to home base at HMCS SHEARWATER, Nova Scotia, to prepare for "taking the deck," of the newly commissioned Canadian aircraft carrier, HCMS *Bonaventure,* sometime in the late summer. VF-870's commanding officer is LCdr. R. H. Falles, her executive officer, LCdr. A. E. Fox.

VF-870 has been an outstanding entrant in the two best known Canadian air shows: the Navy Day Air Show at Quebec and the International Air Show at Toronto. Their exhibition flying attests their skill.

HS-50, which also hails from Shearwater, is under the command of LCdr. G. H. Marlow. In August 1955, HS-50 received six HO4S helicopters direct from Sikorsky. In the development and testing of new tactics, submarines and surface vessels were required for evaluation. In the months that followed, HS-50 became proficient in its work with submarines. ASW procedures and tactics became second nature to the crews, and carrier operations a well-ordered drill.

Only last fall, HS-50 was directed to assist the Royal Canadian Air Force in the supply of the Mid-Canada (Radar) Line. The helicopters were based at Knob Lake, Quebec, a small mining town in the northeastern lake region. In a period of seven weeks, HS-50 transported over a million pounds of men and material. Helicopter transport was the only kind practical in that area.

After their return to Shearwater, it was decided that with the new year, the squadron would journey to Florida with 57 enlisted men and 13 officers for special antisubmarine training activity. It was a welcome change of station.

VF-870 WELCOMES THE OPPORTUNITY TO GET TRAINING IN FLORIDA AND A RESPITE FROM THE BITTERLY COLD WINDS OF NOVA SCOTIA

LIGHTS, CAMERAS, ACTION!

FREE FLIGHT OF MISSILE AND ROCKET MODELS IS STUDIED IN AEROBALLISTICS LAB

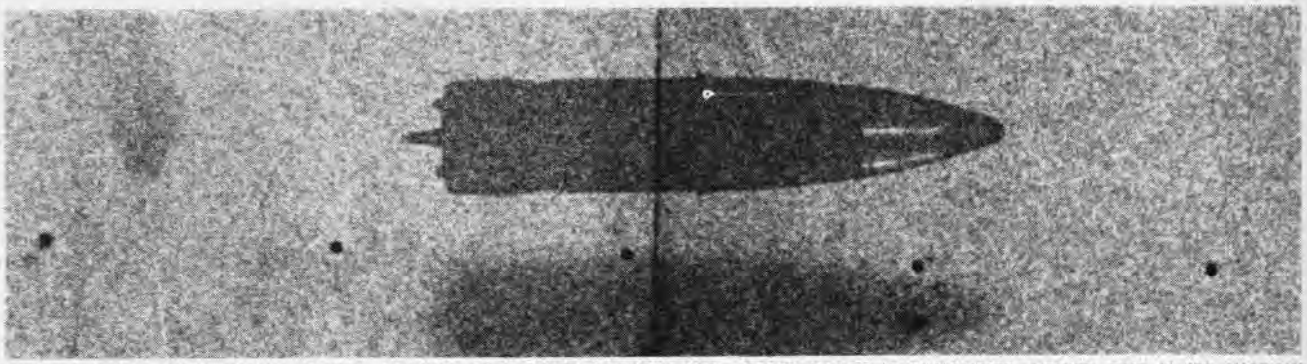
THE LIGHTS are ready, cameras are on station, and the action is about to begin. No movie star has ever before faced such a battery of lights and cameras as face the star of the action on this California set. But the 'star' that moves, on signal, before the lens of the first camera is no movie-land queen performing on a Hollywood set. It is a missile that is being repeatedly photographed at the Thompson Aeroballistics Laboratory at the Naval Ordnance Test Station, China Lake.

Missiles up to five inches in diameter can be observed in free flight in this highly instrumented indoor range. The test vehicle is launched from a gun barrel outside the 480-by-40-by-30 foot test space. Travelling at velocities varying from 600 to 4,000 feet per second, it passes through the range building and out into a missile stop. During this passage, it is photographed successively at four-foot intervals by 22 pairs of special cameras arranged so that the fields of adjacent cameras overlap. Each camera photographs the missile from four to 10 times, hence a total of as many as 220 pairs of images may be produced.

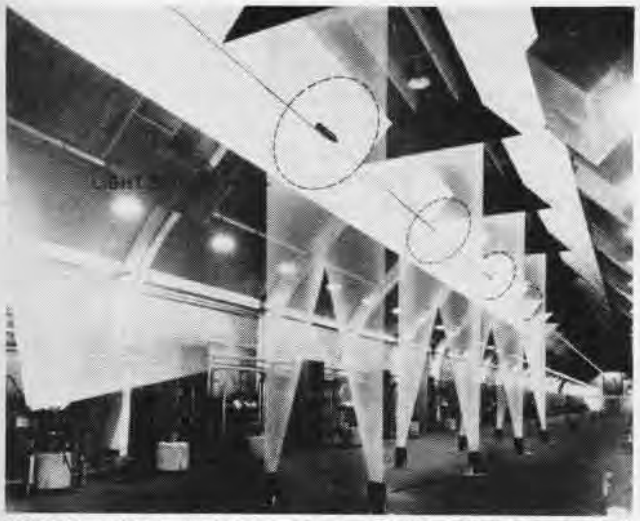
One of the very few installations of its kind for conducting aerodynamic research and development with scale models of rockets and missiles, the Thompson Laboratory makes it possible to obtain much needed data about the performance of test vehicles travelling at supersonic speed.

DESIGN AND development of new missiles and rockets depend to a large extent upon research in aerodynamics and ballistics. Wind tunnels provide a rapid method of investigating static parameters, such as drag, with a fair degree of accuracy. However, the observation of missiles or models in free flight is the only means of getting accurate information about dynamic parameters, such as damping in pitch and yaw, which change during the time the missile is in flight. Observation of missiles and rockets in free flight is one of the most effective methods of obtaining necessary data on the principles governing their flight at transonic and supersonic speeds. But open-range, free-flight testing of full-scale rockets and missiles is expensive and time consuming. The Thompson Aeroballistics Laboratory occupies a position midway between wind tunnels and open ranges both in capabilities, and in costs.

Gun barrels, both smooth bore and rifled, that launch the model rockets and missiles vary in bore from 40mm to three-inch and five-inch. Normally, a metal cylinder called a sabot is used to adapt the configuration of the test vehicle to the gun barrel. The sabot also protects the model during firing, provides an adequate surface for propelling forces, and controls the initial yaw. Sabots separate from the missile early in the flight, leaving the model in free flight throughout the enclosed range, permitting unhampered study.



THIS ENLARGED VIEW SHOWS MODEL AGAINST SCOTCHLITE BACKGROUND. UPPER IMAGE IS SILHOUETTE, LOWER ONE IS ITS SHADOW



MISSILE'S FLIGHT THROUGH LIGHT SCREEN INITIATES ACTION

CENTRAL CONTROL ROOM OF NOTS AEROBALLISTICS LABORATORY

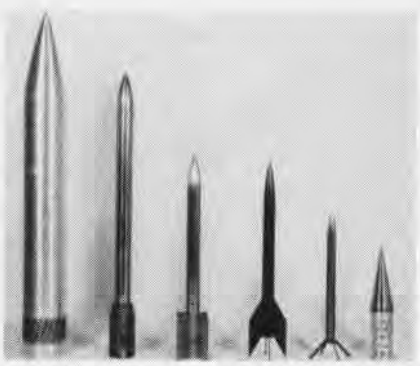
Control of the propelling charge and of the weights of sabots and models permits the firing of missiles at velocities from Mach 0.5 to Mach 3.5, making possible tests in the subsonic, transonic, and supersonic-velocity ranges.

To obtain the required accuracy in the measurements made in the Aeroballistics Lab, it was necessary not only to design a special building, but also to develop fantastically exact cameras and electronic instruments. All the camera stations are precisely calibrated with respect to a primary system of reference markers, 750 of the markers in the 480-foot range. Successive calibrations have shown that shifting of cameras during a year is infinitesimal. (Cameras are set on concrete piers, 30 inches in diameter. These piers are implanted eight feet into the ground.)

EXTENSIVE research had previously shown illumination of the model against a dark background did not give satisfactorily accurate results—to a few ten-thousandths of an inch. Considerable experimentation revealed that photographing a silhouette of the model was the answer, and an ingenious system of multiple-image silhouette photography was developed. The images recorded by the ballistics cameras are silhouettes produced by brilliant illumination of a background of Scotchlite reflective sheeting. Against this background, the edges of the missile stand out clearly. The silhouetted image has sufficient density to permit the accurate readings necessary for translating photographic records of the missiles' flights into numerical values for study.

In operation, as a test vehicle moves down the range, it passes through a screen of light projected downward at each of the 22 camera stations. The passage of the vehicle interrupts the light screen, causing photo-electric units set in the floor to trigger the flashing of the electrical discharge flash lamp mounted with each of the two cameras at that station. The flashes are of a microsecond duration and occur at preset intervals a predetermined number of times. From the time a missile enters the field of view of the first camera until it leaves that of the last, the sequence of events is entirely automatic.

The electronic instrumentation of the Aeroballistics laboratory is a highly complex and completely integrated system. Its primary purpose is the production of the microsecond flash illumination at extremely accurate intervals, synchronized with the passage of the test vehicle. Some of the electronic equipment necessary for this is located at each of the camera stations. The remainder of it is situated in a central control room. This control center also houses the master timing system, the light flash counting system, the control console with a simulated flight system, a high-voltage power system, and an elaborate monitoring system.

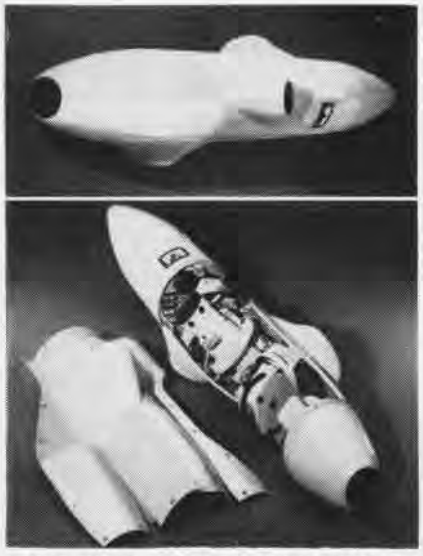


VARIOUS TYPES OF MISSILES ARE TESTED

ACTION IN the tests is initiated by the operator at the control console who directs events on the range and visually monitors the status and performance of the electronic and electrical circuits. Prior to the launching of the missiles, the simulated-flight system provides a complete check of the performance of electronic instruments.

The Thompson Aeroballistics Laboratory is named in honor of Dr. Louis T. E. Thompson, Technical Director of NOTS CHINA LAKE from 1945 to 1951. At the Lab's dedication both Adm. P. D. Stroop, Deputy Chief of BUORD, and Dr. William B. McLean, present Technical Director of NOTS, attributed much credit for the station's progress and accomplishments to the wise and foresighted leadership of Dr. Thompson in the early days of NOTS.

This missile research tool is one of the highly specialized facilities at NOTS that enable the station to cover a wide range of ordnance activities, carrying a proposed missile such as the *Sidewinder* through all the developmental stages to the point where it is ready to be mass-produced for defense.



LOWER PHOTO SHOWS POD WITH COVER OFF

Camera Pod in Production

Used for Scoring Guided Missiles

A new missile-scoring camera pod is in production by Bell & Howell under a U. S. Navy contract. It is to be used to determine how and why a guided missile hits or misses its aerial target.

Since missile and target both fly at velocities approaching the speed of sound and beyond the range of human vision, a remotely controlled system of recording data is an essential tool in evaluating missile accuracy. The new scoring system furnishes this data on motion picture film.

The pods are 70¾ inches long, with an 11-inch diameter, and weigh 95 pounds. Both are mounted on the wing-tips of a drone target or larger missile. Each pod contains four 16mm, high-speed motion picture cameras which are mounted to give complete spherical coverage of a missile's flight as it nears the moving target.

The 200-foot film capacity of each camera is sufficient to cover as many as four missile passes at the moving target. So long as the target is not shot down, four tests may be made on one roll of film. Since, in earlier versions, camera capacity was only 50 feet of film, enough to record only one missile flight, the present device eliminates the need of several drone take-offs and landings, not to mention reloading the cameras frequently.

Camera operating speed is 200 frames a second, with exposure time of 1/600 second per frame, permitting extremely slow study of the film. Ordinary slow-motion movies are filmed at 64 frames per second.

The pod has the ability to bring back its photographic record under adverse conditions. If there is a direct hit, the pods are jettisoned by means of an explosive bolt. Once free of the drone, the pods are lowered to earth by means of self-contained, 16-foot parachutes.

For recovery from water, they have non-mechanical flotation gear which keeps them surfaced for 24 hours. They have built-in dye-markers for location.

Seadrome Light Developed

Invention of Johnsville Engineer

What is called the "self-orienting channel light support" has been developed by Mr. Paul Karnow, an engineer at the Naval Air Development

CAPT. E. E. FAWKES, KARNOW AND MODEL

Center, Johnsville, Pa. Mr. Karnow received an official commendation and a cash award for his invention.

The self-orienting channel light support for seadromes or aeronautical sea lanes is expected to eliminate collision obstacles in seadrome operations, by providing safer high intensity directional lighting for seadrome landings and takeoffs at night. The light support consists of a long metal arm, anchored to the channel bottom, but free swinging with the rise and fall of tides. The top of the support is equipped with a large float, a high intensity directional light, and may be equipped with a "corner reflector" for radar detection.

The float with light, is always at a constant height (not more than three feet) above water, thus reducing collision hazards. In the event of a collision by any craft with the channel light support, the support will displace while still maintaining directional orientation of the light. The floating end of the support is uniquely geared to maintain extremely rigid vertical and horizontal directional lights for night operations, and will automatically compensate for variations in water levels owing to the rise or fall of tides, and wave actions caused by wind or storms.

Mr. Karnow's invention is equipped with a circular float, approximately three feet in diameter, and may be recognized by its definite color from a distance of five miles. In external appearance, the entire device is very compact and is expected to require little servicing and maintenance.

Working models built by the Naval Air Development Center, at Johnsville, will soon undergo evaluation tests by the Navy under actual seadrome operating conditions.

VF-91's Gunnery Record

Achieved in Fallon Deployment

During its deployment to Fallon, Nevada, VF-91 recorded the highest percentage of fire-outs ever obtained by an FJ-3 *Fury* squadron.

Loading 40,942 rounds of 20mm ammunition during the deployment, the squadron fired out 34,399 rounds for an 83.8 percentage. During a two-day competition shoot, a 92.9 percent fire-out was logged.

Cdr. T. A. Turner, CO of VF-91 which is based at NAS ALAMEDA, gave full credit to the squadron ordnance crew "which kept guns in excellent condition throughout the deployment."

A4D SKYHAWK *has arrived at NAS Oceana. Aircraft will be used by VA-83. Above, Cdr. W. C. Bryan, CAG-8, tries on A4D for size. Cdr. J. L. Holloway, CO, smiles his approval.*

New Radar Ship in Fleet

Outpost to be Sentry Near Arctic

The radar picket ship USS *Outpost* is the 10th vessel to join the Navy's Atlantic Ocean extension of the three radar warning networks spanning Canada and the Canadian-American border. The ships rotate on offshore stations, ready to warn of surprise air attacks. Various plans of rotation are being studied.

New developments give the *Outpost* a screening range of several hundred miles. All planes passing through the areas covered by the picket ships are reported back to land stations for a thorough check with flight plans.

Ejection Seat is Modified

Foam Cushion and Steel Strap

Chance Vought engineers have developed a modification of pilot's ejection seats to reduce the possibility of back injuries suffered during crash landings in modern jet aircraft. The new energy absorbing seat installation was produced for the Navy's F7U-3 *Cutlass*.

Because of the high sink rate of today's jets, some forced landings on unprepared surfaces with wheels up have resulted in back injuries, and some pilots have been injured when high nose wheel struts collapsed on hard landings. A number of back injuries have been reported by both the Navy and Air Force after crash landings with all types of jet aircraft.

Vought has developed a frangible foamed plastic seat cushion plus a stainless steel strap in the rear of the ejection seat which reduce the G-forces transmitted to the pilot during sudden, violent contact of the nose of the airplane with the ground or carrier deck.

The application of a stainless steel strap to reduce pilot loads was suggested by C. Koochembere of Navy Air Crew Equipment Lab. The newly designed energy absorbing seat installation was tested by the laboratory at Naval Air Material Center, Philadelphia, during 1956.

Two airplanes with instrumented seats and dummies installed were subjected to simulated hard landings. The first was used to determine loads on a seat installation similar to that used on most present day jets. A second was performed with Vought's new energy absorbing seat strap and cushion installed. Test results indicated that the loads imposed on the seat and dummy were significantly reduced by this installation.

The more important feature of the new system is the steel strap which is installed behind the seat. The top end of the three-foot-long strap is fastened to a fuselage bulkhead and the bottom end of the seat support. In the event of a hard landing, this strap will "stretch" several inches.

COMET COMPONENTS *are being tested in a special fatigue-testing machine designed by de Havilland engineers. It can apply a fatigue load of 100 tons 500 times a minute.*

Cecil Man Makes AF Save

Lost F-86 Given Correct Steer

When Air Force Major T. W. Dodson, flying an F-86 asked NAS SANFORD for a steer, Orlando Radio picked up the call and gave him one. Maj. Dodson gave only the sketchy information that he was over a city with a river running through it. Orlando thought it might be Gainesville.

At the same time, Bob Morgan, AC1, was picking up the major's calls on the UHF direction finder at his post in the NAS CECIL FIELD control tower. From this reception, Morgan determined that Major Dodson and the F-86 were east, over Jacksonville. If he followed the course given, he would soon be out to sea.

The alert air controller informed Maj. Dodson of his position and gave him a heading to Cecil Field. As Maj. Dodson later related: "My faith in the Orlando steer became doubtful. I immediately followed the instruction of AC1 Morgan."

The state of fuel in the F-86 became emergency. When the F-86 landed at Cecil, it had just 10 minutes of fuel.

Maj. Dodson personally commended Morgan for his alertness, and wrote a commendatory letter to Cdr. M. C. Replogle, Cecil Operations Officer. Capt. C. R. Doerflinger, CO of Cecil Field, added a congratulatory endorsement and commended Morgan for his part in displaying "alertness and ability in the prevention of potential loss of life and loss of a military aircraft."

SPARROW III GUIDED *missiles are being installed on this F3H-2M. The new missile will augment Sparrow I now in operational use with the Fleet. Sparrow I, a supersonic air-to-air missile, is some 12 feet long, weighs 300 pounds, and goes faster than 1500 mph within seconds after being launched. The Sparrow II is an experimental missile not intended for Fleet use.*

KAMAN'S EXTERNAL CONTROL SYSTEM

KAMAN AIRCRAFT engineers have developed an external control system known as a "halter," for the Kaman robot (remotely controlled) helicopter, which permits ground personnel to "walk" the robot to any desired location. The halter is connected to the robot's control system in such a way that movement of the halter in any direction by a man on the ground results in a corresponding movement of the robot.

Using the halter, a ground crewman can cause the robot to take off, hover and land, or he can lead the helicopter around in forward, backward

YOUNG LADY PROVES IT'S EASY TO DO

or sideward flight. Simple to operate, the halter can be used by ground personnel after only two or three minutes of explanation as to what it does.

Operating ease of the halter control of the robot helicopter is demonstrated by Miss Connie Angelica, a secretary at Kaman Aircraft (see picture). She took the robot off the ground, "walked" it backward, forward, and sideways, hovered it and made the landing after only brief instructions as to how the halter control operates. Safety pilot Jack Goodwin, hands aloft, keeps his hands off the controls during the demonstrations.

One application of the halter, which has been successfully demonstrated, is its use in the loading and unloading of externally slung cargo carried by the robot. In this case the cargo is placed in a cargo net on the ground. Using the halter, a ground crewman walks the robot to a hovering position over the cargo and attaches the load to the robot's cargo hook. Once this is accomplished, the ground crewman operating the halter relinquishes control of the robot to the operator of a ground control station for direction.

Through radio control, the ground control station operator flies the robot to its destination where another ground crewman takes over control with the halter, walks the robot to the spot where the cargo is to be unloaded and, while hovering the robot, releases the cargo. This ground crewman can then either relinquish control of the robot to a ground control station for flight to a second destination, or he can land the robot on any desired landing site.

The robot also can be taken off and landed remotely by the ground control station operator and it can be flown from an airborne control station carried in another helicopter. Control can be passed back and forth between halter operators, ground control stations and airborne control stations, and the robot can be flown on a memory course fed into either airborne or ground control stations.

In addition to carrying cargo, the robot helicopter has successfully demonstrated its ability to perform special missions while being guided from ground control stations and airborne control stations, or by memory fed into either ground or airborne control stations. These special missions include simulated battlefield surveillance through a small lightweight TV transmitter mounted in the robot and reporting visually to a TV receiver located at the ground control station; laying battlefield communication wires at the command of the ground control station; and making permanent records of battle maneuvers through remotely actuated motion picture and still cameras installed in the robot.

Using TV to seek out target areas, the robot drops smoke bombs to mark those areas for artillery fire. The robot can be used to lay a smoke screen which will obscure enemy observation of troop movements. It can be used also to lay and detonate lines of explosive charges through areas spotted with enemy land mines, thereby clearing paths for the movement of troops and vehicles.

To develop the robot guidance system, Kaman Aircraft engineers have modified a Kaman HTK-1 helicopter as a robot. The development, which is a joint Navy-Army sponsored program, has been advanced to where non-pilots now fly the robot from both the ground control station and the airborne control station, and through the use of the halter.

Moffett Sailor Cited

PH1 is Given Meritorious Mast

Capt. A. S. Hill, skipper of NAS MOFFETT FIELD, commended D. L. Podbreger, PH1, at a Meritorious Mast.

Podbreger, assigned to FASRon-10, is now on TAD to the station photo lab. He made a beneficial suggestion for installing a film supply indicator in the film magazine used by the ID camera.

The suggestion has proved so worthwhile at Moffett, that it was forwarded to BUAER for dissemination to other activities.

For station benefits derived from his idea, Podbreger is going to receive three days of special liberty.

Blue Angels Honor Star

Borgnine Made Honorary Skipper

The *Blue Angels* made Academy Award winner Ernest Borgnine an honorary skipper of their squadron in

HOLLEY READS THE AWARD'S INSCRIPTION

ceremonies aboard the USS *Boxer* in San Diego, California.

Calling Borgnine "one of the team's most faithful and avid rooters," Cdr. E. B. Holley, commanding officer of the *Angels*, presented the award as members of the team and the ship's crew looked on.

Borgnine, a former GMC during WW II, expressed his pleasure and recalled his early Navy duty as a boat coxswain, saying, "I never thought that some day I'd be honored as I am today."

The presentation took place before "shooting started" on a film by Gallu Productions about the *Blue Angels*.

THE NAVY'S *automatic carrier landing system, developed and built by Bell Aircraft Corporation, is a combination of radio and radar.*

RADAR LOCATES *the plane, determines its position. The plane is then automatically directed down the proper flight path and landed.*

DURING PRELIMINARY *tests, more than 1200 landings have been made using the Bell automatic carrier landing system. Above, an actual landing under near-zero conditions is made with the system, by Cdr. Russell, Assistant for All-Weather Matters, Office of DCNO (Air).*

NEW AUTOMATIC LANDING SYSTEM

THE BUREAU of Ships is continuously on the look-out for newer and more efficient means of insuring flight safety aboard aircraft carriers. One of the latest methods, now undergoing test, is an automatic landing system.

The automatic carrier landing system (ACLS) has successfully completed all land trials. It will soon be installed on a carrier for tests under carrier flight operations at sea.

Developed under contract to BUSHIPS, the system was built by Bell Aircraft Corporation. In land-based tests, leading up to its sea trials, it has completed more than 1200 landings with high precision.

Completely automatic, ACLS has successfully landed six different types of jet fighters, large transport aircraft, and light commercial airplanes at a number of different bases. It operates in all kinds of weather.

The system, which is highly mobile, is a combination of radio and radar. Radar locates the aircraft and determines its altitude and position in relation to the carrier deck. An electronic computer does the rest. It sends the necessary course corrections to a device which controls the craft into the desired flight pattern.

Taking into account the carrier's movement the instant the plane is to touch the deck, the system automatically sends the craft around for another attempt if it is not in the best attitude for a safe landing.

Cdr. A. G. Russell, Assistant for All-Weather Matters, Office of the Deputy Chief of Naval Operations (Air), has been nominated to conduct the carrier trials. Tests on board the carrier are expected to require approximately four months.

During one part of the land-based phase of the test program, Cdr. Russell was successfully guided through four actual blind landings. These were made during a heavy snowstorm at Niagara Falls Airport. Other airplanes in the area were unable to take off or land because of restricted visibility.

Navy scientists point out that the system would not only make all-weather flight possible, but could be used to land pilots who are either wounded or overly tired after flying long missions.

During Korea, the need for such a system was emphasized. Some carrier strikes against the enemy were called off because of poor visibility.

The system has applications for both sea and land-based operations. ACLS has many potential military and civilian uses. Combined with a cross-country navigational system, it could make completely automatic flight possible under all weather conditions. Certain portions of the system with its applications are undergoing careful evaluation for the Navy at NATC PATUXENT RIVER, Md. at present.

THE POSITIONING *trailer is used here to remove tail section of F1 in tests at Patuxent.*

POSITIONING *trailer is attached to transport trailer. Adapters hold the tail section.*

TAIL SECTION *on transportation trailer after being rolled from the positioning trailer.*

VERSATILE MAINTENANCE EQUIPMENT TRIED

AT NATC PATUXENT RIVER and on the attack carrier *Forrestal*, maintenance men are trying out new equipment designed to give them a variety of implements that can do many jobs. If there are three or four different planes on a carrier, maintenance usually requires a number of hoists, cranes, and handling devices to match each type of aircraft.

To design equipment that is versatile enough to be used in a number of maintenance situations was the aim of the Air Logistics Corporation when it developed the Air-Log System. The basic elements of this system are a series of trailers for various purposes, a folding work stand, a hydraulic yoke hoist and a work unit trailer which is essentially a mobile table with places to stow tools and special equipment.

One of the most flexible elements is the heavy duty positioning trailer. It utilizes parallel rails which match the rails on the other trailers and the folding work stands, thus permitting roll transfer of the aircraft parts being worked on. Positioning by the trailer is achieved through a combination of hydraulic and irreversible screw-type actuators which provide fore and aft tilt, roll and yaw, together with linear movement in three planes. Complete wheel retraction reduces floor loading and volume for shipment by air. It also facilitates transferring the trailer load from pneumatic tires to adjustable stanchions for solid positioning.

The secret of the Air-Log System's success is specialized adapters for various engine types and aircraft components. The trailers have multi-purpose capabilities, and the adapters make them so. Since the adapters are relatively inexpensive, the system will save money as well as space. Should a new aircraft come along, new adapters can be designed to fit its components. If an aircraft type is transferred from one base to another, or from one carrier to another, it will be simple to ship the adapters, rather than the conglomeration of specialized equipment used at present.

Potential applications of the Air-Log System are numerous. For example, the positioning trailer can be used for rocket pod removal and installation, bomb loading, installing and removing external tanks and missiles, loading ammunition, removing and installing gun turrets and bomb racks. It can be used as an elevated work platform or a utility ramp or crane. The trailer is handy to remove and install aft fuselage or nose sections, control surfaces or wing panels.

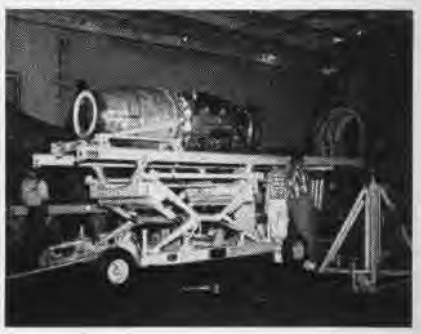
The efficiency of the multiple-use designs of the Air-Log System meets a special need at a time when there are so many devices required for maintenance. By making one unit do for many purposes, engineers are solving problems that were growing critical.

The engineering specialist trailer has been designed for 14 versions, including those of power plant specialist, mobile tool crib, mobile kitchen or dispensary, etc. It gives special personnel the tools, test equipment, and parts they need to have. Its compactness makes air transport feasible and facilitates rapid operational set-ups or withdrawals from an advanced base.

THE FLEXIBILITY *of the positioning trailer makes it adaptable to a variety of purposes.*

TILT—AND *out comes the engine, ready to go on transportation trailer or the work bench.*

AND UP *goes the engine mounted on the positioning trailer, this time on the Forrestal.*



New Use for Missile

Used for Obtaining Weather Data

A supersonic anti-aircraft missile built by the Army is being converted to a weather observer by scientists at the Naval Ordnance Laboratory, White Oak, Maryland, and has been renamed *Hasp* which stands for "high altitude sounding projectile."

The original *Loki* rocket was developed as a defense against high-level bomb raids and was later rejected in favor of the heavier *Nike* missile. Since the *Loki* could be readily adapted to shipboard use at moderate cost, the Navy selected it as a vehicle to propel weather instruments to extreme altitudes.

The use of the *Hasp* will enable ships at sea to make regular meteorological observations to altitudes over 100,000 feet. The *Hasp* is a single-stage, solid propellant rocket which can be fired from five-inch guns. The rocket motor and the dart, or smaller forward part, ascend as one unit to about 2600 feet. At this point, the propelling charge burns out, and the rocket booster falls back to earth. The dart coasts on upward to more than 100,000 feet—over 20 miles—in approximately 80 seconds. A timing device in the dart's nose splits open the casing at the summit of its flight and ejects weather instruments.

The weather instruments are lowered by a balloon. Telemetering equipment sends back to an electronic computer in the ship temperature and humidity in the layers of air through which the balloon passes. A tracking system also is included; this enables meteorologists to get data on wind direction and velocity at succeeding levels of descent.

VA-44 Garners 37 'E's

Record Made at Guantanamo Bay

The high flying "Hornets" of VA-44 led by Cdr. T. J. Taylor returned to Jacksonville with an impressive record of 37 individual "E's" which they received during the Atlantic Fleet Bombing Competition at Guantanamo Bay.

Five of the pilots—Cdr. T. J. Taylor, Lt. Jack B. Rader, Lt. Kenneth R. Wiliey, Lt. Patrick P. Marsha, and Ltjg. James S. Willis—won a Navy "E" in each of the three competitive exercises.

The "E's" are awarded for a high degree of individual bombing skill.

CHIEF TUFARELLA DISPLAYS SOME OF THE EQUIPMENT EARNING HIM A COMMENDATION

VA-34 INGENUITY PAYS OFF

MAINTENANCE men of VA-34, based at NAS CECIL FIELD, believe in using ingenuity in their work. It has paid off in speedier, safer maintenance of the squadron's A4D's.

Not long ago, VA-34 received its first *Skyhawks*. Squadron personnel displayed an unusual capacity for making the transition to the new aircraft.

Two of the most important innovations, a canopy bungee safety and a light weight tail stand, have earned a letter of commendation from Cdr. Ernest McClintock, skipper of VA-34. The air frames department, under the direction of M. J. Tufarella, AMC, developed these devices.

The canopy bungee safety is composed of a short piece of tubular steel, two bolts and a piece of chain. These keep the canopy locked open when there is no pressure on the bungee. The need for this improved locking device became apparent when the canopy accidentally fell on one of the pilots who was sitting in a plane with another type canopy safety device.

The tail stand is made of several pieces of tubing welded to a base plate. It bolts to the catapult hold-back and tail hook fitting, and hangs free several inches above the deck. The stand permits the clearance of arresting wires and the jacking of the nose wheel, but keeps the tail pipe clear of the deck.

A canvas-lined, steel clamp was devised which is attached to a short piece of bungee. This plugs into a jack point under each wing, acts as a hold-in for the aerodynamic slats, and protects the slats from dirt and corrosion when the aircraft is not in use.

Another major labor-saving device is a tail pipe stand which allows the tail pipe to be extended so that maintenance work can be done on the section without complete removal of the tail pipe.

Other developments include a hand tow-bar (the plane is light enough to be moved easily by several men); a stand for the round-shaped electronics packet; and a wooden stand which holds the nose of the A4D during electronic repair. The last two devices were designed by the radio shop.

Any squadron or activity interested in any of these items can write for information to VA-34. Pictures or construction plans will be forwarded on request. Address all queries in care of Fleet Post Office, New York, N. Y.

LETTERS

SIRS:

The February issue of NAVAL AVIATION NEWS afforded all hands of VF-878 a tremendous surge in pride and morale.

On behalf of officers and men, I wish to compliment you and your staff for the excellent and timely article you wrote about our squadron.

EDWIN M. WILSON, CDR.
Commanding Officer

NAS OAKLAND

SIRS:

I have been trying to determine whether our squadron, VF-84, is the first jet squadron to have all pilots in the squadron both qualified on the angled deck with mirror and the axial deck with paddles. We have qualified aboard the USS *Lake Champlain* (CVA-39) on 5-8 October 1956 and aboard the USS *Saratoga* (CVA-60) on 27-28 October 1956.

W. E. RAMSEY, LTJG.

† How about it, fellows? Did any squadron beat them to this mark?

SIRS:

All former crew members and members of Air Groups that have served aboard the USS *Oriskany* (CVA-34) since commissioning who are interested in holding a reunion in New York City this fall, contact either:

P. A. Catalano, QM2
USNCCC Bldg. RF
Brooklyn, New York
or
B. J. Catalano
Wells Avenue
Congers, New York

P. A. CATALANO, QM2

OUTRAGED RILEY, *a 65-pound English bulldog, is shown with Ltjg. W. G. Friel of VF-194 after being given an "official" heave-ho for antics "unbecoming an officer." Riley has been transferred to VF(AW)-3 at Moffett Field.*

SIRS:

This year the USS *Hornet* (CV-8 and CVA-12) is having a reunion at the Hotel Emerson, Baltimore, Maryland, on July 6. All officers and men interested in attending should contact:

Thomas C. Stinnett
President
USS Hornet Club
3903 Balfern Avenue
Baltimore 13, Maryland

BILL FARADAY, PRO

Ingenuity at NAS Dallas

Three Tools Speed Maintenance

The do-it-yourself program has its boosters at NAS DALLAS.

Charley Johnson, AD2, needed a device to supply high pressure air to the recessed, hard-to-get-at airstem on certain tailwheels of aircraft. The conventional airchuck was not efficient for this job. He therefore devised a threadless, gasketless, probe-like, sharp-nosed airchuck which does the job efficiently and quickly.

S. O. Tennyson, AM1, required a safe, durable storage bin for small screws, rivets and other small items in the Metal Shop. He had tried glass jars, but they were frequently broken. He tried cutting a panel out of a used oil can and making a "window" of

JOHNSON, TENNYSON, WARREN AND TOOLS

plexiglas. This worked and Tennyson has made several dozen of these small bins for the Metal Shop.

T. D. Warren, MR2, needed a screwdriver which could install and remove metal screws from certain airplane flaps. Conventional screwdrivers tended to slip out of the screw slot and damage the surrounding metal surfaces. Warren turned out a device that does the job easily and efficiently.

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● COVER

In frosty Argentia, Newfoundland, stand the Super-Constellations of VW-13, one of the three Airborne Early Warning squadrons that fly the Atlantic barrier.

● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a $2.25 check or money order ($.75 additional for foreign mailing) made payable to Superintendent of Documents, Government Printing Office, Washington 25, D. C. Single copies are 20 cents each.

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SQUADRON INSIGNIA

'Warhorses' of VA-55 lead the parade of insignia in this merry month of May as their flying seahorse, bearing a rocket, denotes the attack mission. The delighted pelican of VS-27 gobbles up a submarine just as the potent power of the squadron demolishes the sub. VP-57 sports an all-weather eye on its pilots' shoulders. Flying great distances, the squadron is effective in any kind of weather, day or night. It's as easy as 'shooting fish in a barrel' according to VP-16's eagle as he perches purposefully on a fishbowl in which can plainly be seen a submarine.

VA-55

VS-27

VP-57

VP-16

A PORTRAIT OF UNIFICATION

POWER FOR PEACE is the theme of the tenth annual Armed Forces Day, May 18. Millions of Americans will observe this day by visiting the great centers manned by our fighting team, ever on the alert to deter unwise aggressors.

NAVAL AVIATION NEWS