

NAVAL AVIATION

NEWS

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38th Year of Publication

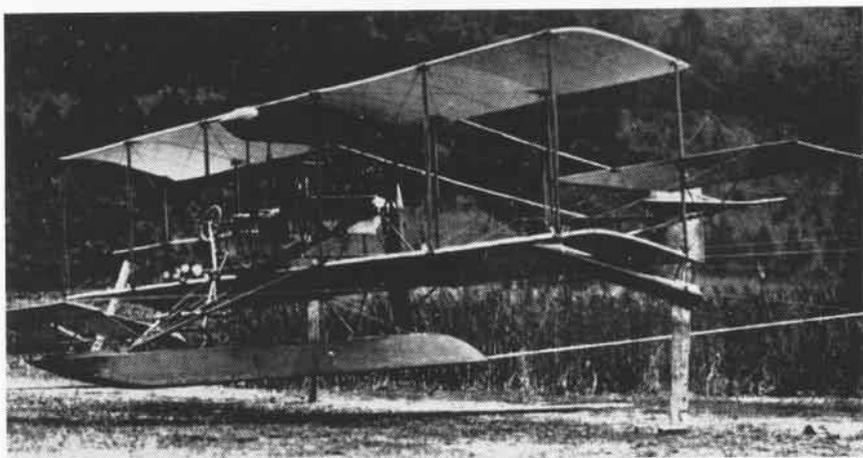
SEPTEMBER 1957

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THE EVOLUTION OF NAVY WINGS AND WIRES



Yards of wire held this, the Navy's first plane, together. It was all external for bracing.



The SON-1 also had a lot of wire holding it together as can be seen in this 1939 picture.



The F11F-1 has about six miles of wire in it, but all internal, and it has different purposes.



The Navy's A-1, top, of 46 years ago, has evolved into a complex, but much less complicated looking, streamlined craft. Miles of wire used in construction are now concealed in the fuselage, and are used for electrical, electronic

and radio equipment. Whereas the early aircraft were thrown together by guess and by gosh, blueprints for today's aircraft weigh more than the finished product. Plane weight has increased 12 times; cost has increased 120 times.



TEST PILOT BOARDS 'HOT' F8U-1 CRUSADER FOR FIRST FLIGHT. BEFORE THE F8U-1 REACHED THE FLEET, F8U-3 WAS UNDER CONTRACT

DRAFTING BOARD TO MOTHBALLS

NAVY, INDUSTRY FORM WINNING TEAM TO PROVIDE BEST PLANES FOR FLEET

JEHOSAPHAT, I've been looking for those answers nine years—still don't have them all!"

That's how a Bureau of Aeronautics spokesman responded to the questions asked by a NANews reporter who'd been sent to BUAER with instructions to trace an airplane from "cradle to grave."

The News wanted the life story of an airplane through its design, development, procurement, production, test and acceptance, fleet service,

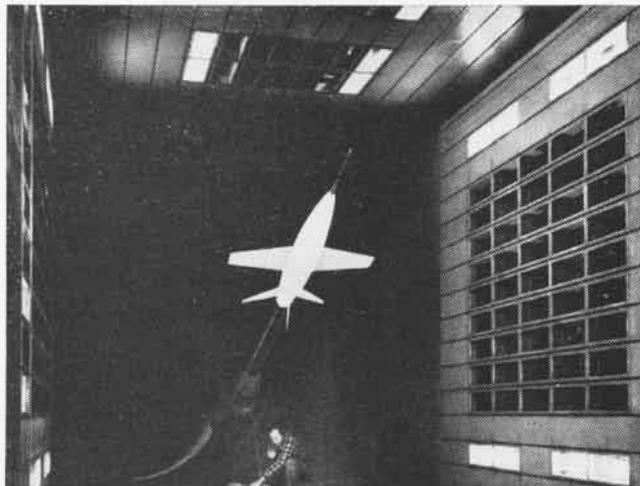
maintenance, and finally to Obsolescence Row.

Every reader has a favorite airplane. We'd like to mention them all but it's impossible, so we've arbitrarily selected a few for this story.

Since NANews has a space budget of only 40 pages a month, including photographs, the whole story can't be told in one issue. This, then, is the first in a series of articles on the birth, life and death of a United States Navy airplane.



PLANE MAKES FIRST FLIGHT ON ENGINEERS' DRAWING BOARDS



WIND TUNNEL MODEL TESTS SHOW HOW ACTUAL PLANE WILL FLY

BUAER'S GOAL is to deliver a finished product to the Fleet when the product is needed. Its staff of 2743 military and civilian employees is devoted to the concept that the product—be it airplane, guided missile, 'copter or blimp—is delivered without bugs, if humanly possible.

How BUAER is organized to reach this goal is a story in itself. Let us be content to know that the Bureau employs the best methods of industry and government to meet the constantly changing requirements of the Fleet and to incorporate the rapid advances of technology in the hardware it produces.

The need for constant development of new planes is obvious. To learn how the Navy faces up to that need, let's go to the very top and see how a decision is reached to build a new airplane.

Federal law decrees that the Navy's responsibility in the role of national defense and the art of waging war be determined by the National Security Council and the Joint Chiefs of Staff. A balance is struck at that level to insure that all the military services will have the weapons they need to defend the nation and fight a war.

In line with this policy, the Chief of Naval Operations is responsible for the timely development of weapons to

meet the Navy's needs. BUAER is, in effect, CNO's agent to keep the best planes flowing to the fleet in such quantity that fleet air needs are met on time, yet within the budget permitted by law.

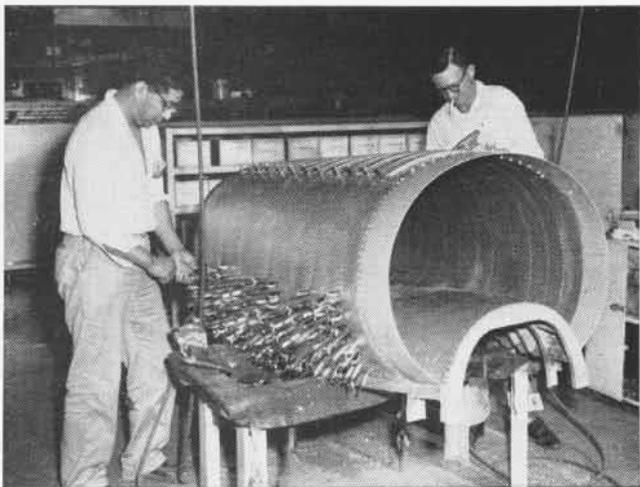
An *idea* for a new plane may be advanced by any number of sources. A Jaygee being interviewed by a safety board in a hospital ward after his plane has ditched might disclose what is deficient in a current model. Research engineers in BUAER, who with OPNAV experts have access to intelligence reports and industry capabilities and are in a position to figure what type of aircraft will be needed to stay ahead of potential enemies today, next year and even 25 years hence, come up with ideas.

Another source is the aircraft industry. Various competitors propose ideas on how to build a better airplane to help the Navy stay ahead and keep industry at work.

There's such a close meeting of minds between the various parties concerned that it's nearly always impossible to make an arbitrary statement that "a BUAER engineer conceived this one; Lockheed that one; Douglas this one, or another manufacturer that one." Almost invariably, many minds have teamed to advance the idea and many pitches have been made to sell the idea to somebody on the



CRUSADER'S CENTER FUSELAGE IS SUB-ASSEMBLED IN FACTORY



AIRSCOOP IS SUB-ASSEMBLED. NOTE ACCESSIBILITY OF PARTS



PLANE'S CENTER AND FRONT FUSELAGE SECTIONS ARE JOINED

other side of the Fleet-BUAER-OPNAV-Industry diamond.

When an idea for a new plane is advanced, the question session begins. Is the proposed airplane feasible in the light of fleet needs and industry potential? Is the idea crackpot or sound? Research engineers themselves are first to admit that the line between ridiculous and sublime is thin indeed. For instance, a vertical take-off plane ten years ago might have been considered in either light.

Will the budget stand the cost of the new plane? Is it in the nature of a stop-gap measure or does it have a long service life potential?

Does the plane require completely new design? Could a proved type be modified to satisfy the need? Is there a similar "off the shelf" item that could be bought from industry or adapted from another military service model?

Most important, will the new plane help satisfy the needs of the fleet in its role of maintaining control of the seas, the air over the seas and the water under the seas' surface? These are fundamental questions.

Once these and many other points have been hashed out, studied and discussed thoroughly in BUAER and OPNAV and finally resolved, a recommendation goes forward to CNO. If the need is valid, the price tag reasonable, and



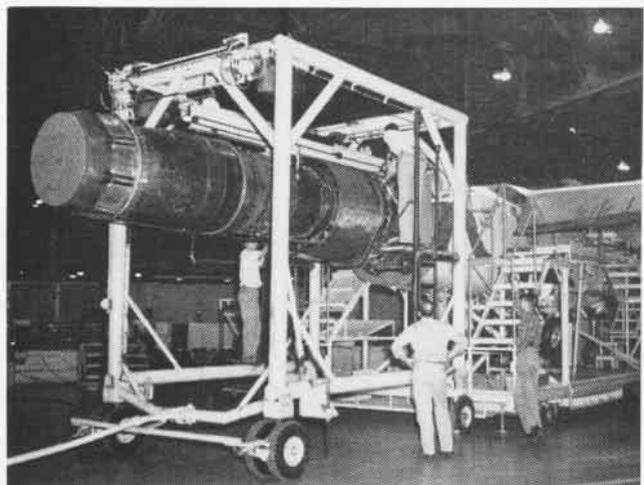
NEXT, ATTENTION FOCUSES ON ASSEMBLY OF MAIN WING TIP

the production feasible, the project is approved by CNO and sent back to BUAER in the form of an *Operational Requirement*, which is literally the charter authorizing BUAER to work rather than wish.

Op Requirement in hand, BUAER begins a careful analysis. The Research Division makes one or more design solutions to prove and re-prove the idea's feasibility, to see how much it could be modified for future needs and to spot any potential bugs at the outset.

There's a series of cartoons circulating in BUAER which portray the various sections' concern over what the plane should include. Based on the old tale of three blind men visiting the zoo and each relating his impression of an elephant from the particular section of the elephant he touched, the cartoons show the plane as seen by Avionics, a veritable flying laboratory with no wings or power plant; by Power Plants, as one giant engine without electronics, hull or wings; by Air Frame Design, as a marvel of aerodynamics but without power, electronics or other appurtenances which take from its ability to streak through the sky at several times the speed of sound.

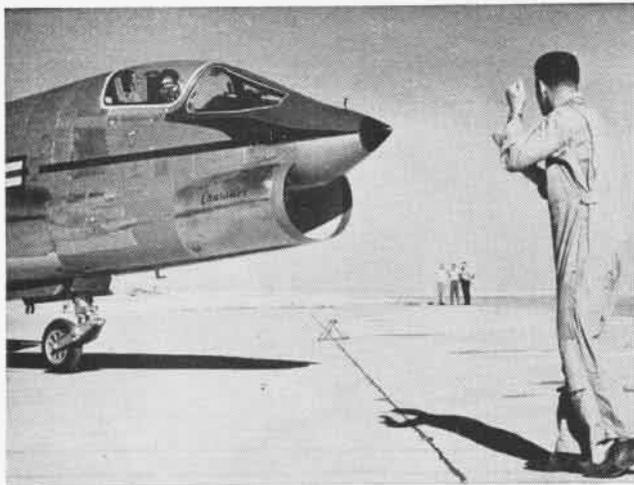
In many ways the design of a new weapon can be compared to the art of taking a picture. To get a little, like



NEARING END OF ASSEMBLY LINE, POWER PLANT IS INSTALLED



BUGS REVEALED IN TEST ARE REMOVED ON MODIFICATION LINE



NEW PLANE TAXIS TO TEST WHEELS, CONTROLS, LANDING GEAR

taking a picture on a dull day, you have to *give* a little, like using a larger aperture and thereby sacrificing depth. If the new weapon is to have an improved but larger radar, for example, there must be *room* for that radar and there must be enough *power* to accommodate the radar's added weight and the larger airframe required to house it.

All these conceptions are finally weighed in the light of judgment and the plan proceeds to a second decision; the plane's actual specifications.

Specs written, there comes a choice of procurement methods. Should the Bureau proceed by *competitive* or *negotiated* procurement? If an existing model could be modified to meet the need, a negotiated procurement with the firm producing the existing model would be in order. Negotiated procurement would also be appropriate where only one firm has the required production capability to produce the new type or in the case where the new plane was conceived by a particular firm.

Let's assume the plane is a new concept, that the idea was advanced by a military mind, that several firms have the capability for production and that a competitive procurement is in order. A bid invitation list is carefully prepared. Proposals are expensive, sometimes costing the prospective manufacturer up to a quarter million dollars in manhours and materials for designs, models, tests, cost estimates and blueprints. Firms overloaded with contracts or which do not have the physical requirements to handle the work are ruled out.

Finally the bid list is complete and mailed from BUAER. Firms are given several months to prepare proposals. Then on a given day they submit competitive designs, each complete enough to permit BUAER to evaluate them from the standpoints of performance, simplicity, maintenance and cost. BUAER handles rival bids with great care to avoid compromising "trade secrets" or making a premature disclosure of who will win the contract.

In some cases more than one contract is awarded. When the best design is determined, the Chief of BUAER consults with DCNO(Air) and the Assistant SecNav for Air and a contract is awarded for the most promising item.

Step four is the writing of a contract with detailed specifications. Here rests in large measure the difference

between future usefulness and future obsolescence of the aircraft. The latest *proven* accessories (power plant, electronics, ordnance, etc.) and the most *promising* new accessories that will be available in the immediate future are included in the specs.

Design experts pay close attention to possible problems of placing too heavy an engine or radar into too light a frame. Practical minded, fleet trained officers insure that radical new concepts the engineers want to include are not too complicated for fleet maintenance crews, that in the struggle for lightness BUAER R&D engineers do not specify a hull too fragile to stand up under carrier landings. Power plant experts have to guard against the possibility of putting a 1950 plant into a 1980 chassis.

In short, BUAER's Research and Development experts place themselves in a Jekyll-Hyde position of enthusiastically trying to put the latest gadgets in the new plane, while at the same time tempering their enthusiasm by remembering that all new ideas may be subject to bugs.



ACCEPTANCE TEST OVER, THE PLANES COME OUT FOR FIRST FLIGHT

Three months or so after the contract is let, the contractor produces a cardboard and plywood mock-up of the airplane in full scale. BUAER's Mock-up Board meets at the contractor's plant to inspect the designer's product in detail. Then the contractor and Bureau engineers confirm the general arrangement of the airplane.

They still tell the story in BUAER about the Mock-up Board's inspection of a new model some time back. The model was graceful, it observed all the rules of good aerodynamics, the proposed power plant seemed adequate and there was good foresight shown in providing navigation, detection and ordnance equipment. Everyone was well pleased until one of the BUAER engineers made the startling discovery that the mock-up hadn't made provision for the pilot to get into and out of the plane!

Thus the Mock-up Board makes decision number five. It's a good or a bad plane and it will or will not fly. For the story's sake, let's say it will.

The manufacturer needs 15 to 24 months to complete the design and come up with the prototype airplane.

Point six involves putting the new airplane into limited production. Two factors influence this decision: Fleet

need and the manufacturer's progress of development. In a case where the need is great, where design is proceeding satisfactorily and where wind tunnel and other tests are favorable, BUAER will consider the plane's suitability for pilot line production.

The first two or three planes delivered are only sufficient to show overall promise. For adequate flight evaluation of modern planes, with their complexities of electronics and armament, BUAER feels there should be simultaneous evaluations involving 15 to 23 planes obtained from a pilot production line to prove that a model meets the requirements of operating squadrons of the Fleet.

A new model is flown first by the contractor's test pilot so whatever bugs that can only be found in actual flight test can be discovered. Normally on the first flight the test pilot is content merely to get the plane off the ground and safely back again. On subsequent tests the flight envelope (speed, distance, altitude, stalling speed, general flight characteristics) is expanded as rapidly as the BUAER factory representative on the spot recommends. Then a preliminary flight evaluation is scheduled. Navy test pilots from the Test Center make extensive flights to learn the plane's overall promise and its features which require improvement or replacement before it is combat ready. Often the manner of flying a specific test differs between factory test pilot and Navy test pilot. What checks out for the factory test pilot may reveal a bug in subsequent Navy-piloted tests.

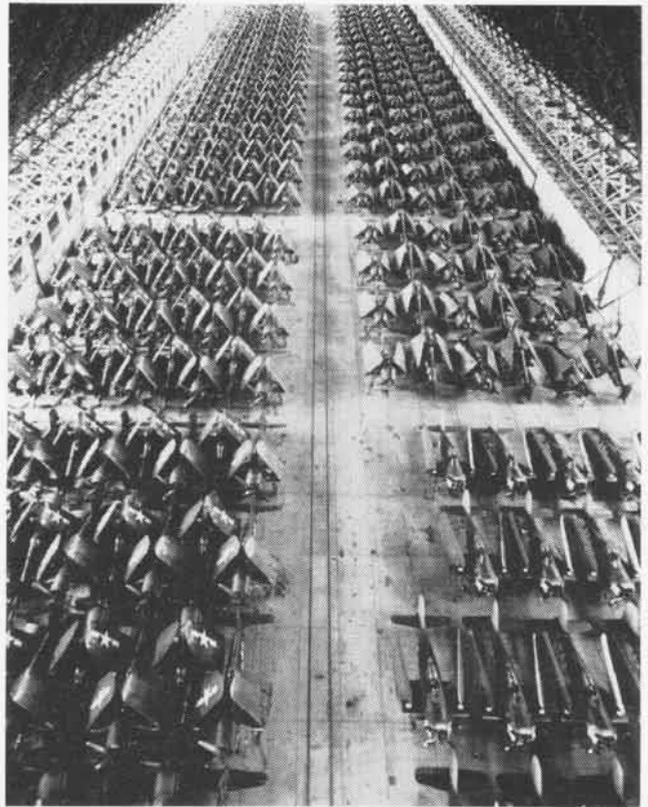
Point seven involves the decision on when to go into production, a factor influenced largely by evaluation flights. On this decision also rests two vital factors—time and money. If the decision can be made in time to build the initial planes on production tooling, the time required to put the new plane into service will be significantly reduced.

So profoundly important is this decision, it is generally proposed by the Chief of the Bureau, reviewed by the Chief of Naval Operations and the Assistant SecNav for Air and finally made by the Secretary of Defense. This is not buck-passing. On the decision hinges millions of dollars scuttled if the decision is premature, or an expensive time delay if the decision is postponed.

Once the decision for limited quantity production has



NEW NOSE GEAR CENTERING DEVICE IS INSTALLED AFTER TEST



MOTHBALL ROW, LAST STOP FOR VALIANT BUT OVERAGE PLANES

been made, the aircraft model becomes part of BUAER's production schedule and a torrent of materials, components and sub assemblies start flowing to the production and assembly lines. Even as materials are stockpiled, research on new components continues. A modification may be proposed by a research man that would make the plane obsolete before the first machine rolled off the assembly line, a further reason for keeping early production limited.

BUAER is inaugurating a new Weapons System Concept which, when functional, will say to a manufacturer in effect: "Give me a plane that will do this and that. The problem of stockpiling all ingredients is yours." The North American A3J and Douglas A4D were the Navy's first attempts to let the manufacturer into more of the know, yet leave him to collect the necessary aluminum sheet, plate, extrusions, forgings, wheels, struts, engines, radar sets, radio, instruments, controls, auto-pilots, ordnance and other bits and pieces to make the end product a plane that will live up to specifications.

To reduce the problems of selecting electronic components, a program has been inaugurated which allows various types of complex equipment to be produced on a pilot production basis before they are selected for a specific aircraft installation. This amounts to Peter keeping up with Paul in the Avionics/Power Plants/Airframes race.

Knowing that each element of a complex aircraft requires lengthy development in its own right, avionics experts work toward a radar with greater range and simplicity of operation which will keep pace with the faster engines being designed by power plant experts. If the plane of 1975 will cut Mach 8 (6100 mph), it should have a



WORKMEN SWARM OVER CRUSADER TO MAKE LAST MODIFICATIONS

radar with greater capability to help search out targets. To grasp avionics' problems of the future, compare them in magnitude with today's problems of designing a radar which will permit an interceptor plane flying at 1000 mph to locate and track a missile moving at 1600 mph on an opposite or nearly opposite course!

Here's typical scheduling on a new carrier plane that has been okayed for limited production under the Bureau's Fleet Introduction Program (see NANews June 1956, April 1957). The FIP concept is an effort to guarantee that planes arriving in the Fleet have been thoroughly tested, that modifications have been made in the factory and that major installations are not required by maintenance crews.

The first six planes off the production line are assigned to the contractor for general performance and flight safety tests. These are called "bailed" aircraft. Any discrepancies found during these tests are corrected in the production line. The next seven are assigned to the Navy Board of Inspection and Survey for tests to determine Fleet suitability and to discover whether or not the builder has lived up to his contract. The next four go to the Naval Air Test Center at Patuxent River for accelerated evaluation and development test. The next six are assigned to the Fleet Introduction Program.

In this program, pilots fly a simulated fleet training syllabus, keeping working hours typical of a squadron undergoing training. They wring out the plane under every circumstance likely to be encountered in actual fleet operations and they provide information on aircraft availability,

usage data on all spare parts, operational difficulties encountered and any peculiarities of the airplane. NATC makes all test findings available to fleet pilots and ground crews, airframe and engine contractors and airplane equipment contractors representatives.

Testing completed, squadron pilots and maintenance men take delivery of the new planes and fly them to the home station to check out the balance of the squadron.

Here, in fact, begins the plane's life span. It's out of the cradle, but still a long way from the grave.

Even as insurance brokers and statisticians compute the life expectancy of a human being, aviation experts compute the life span of an airplane. Instead of estimating an airplane's life at threescore and ten, they think in terms of *service tours*.

A service tour is simply a given number of operating months, flying hours or calendar months, whichever is the most satisfactory criterion for a particular model of aircraft. Usually three or four service tours complete the service life of a plane.

When the plane finishes its first service tour, it is ferried from the operating command to one of nine major overhaul points. They are located at Naval Air Stations Alameda, San Diego, Corpus Christi, Pensacola, Jacksonville, Cherry Point, Norfolk, Quonset Point and Lakehurst.

Lakehurst is exclusively an airship overhaul point. Other activities rework aircraft according to their individual capabilities. Each O&R has a great deal of flexibility when it comes to type and numbers of aircraft to be overhauled.

On arrival at the overhaul point an aircraft is inspected thoroughly, disassembled, reconditioned and reassembled. Outstanding service changes and improvements are accomplished. In some instances, as many as 200 changes are incorporated in the aircraft during an overhaul.

Out of overhaul, the plane is subjected to several inspections and test flights, then is delivered again to an operating squadron to begin its second service tour.

A new concept of aircraft maintenance known as the *interim rework* program is being introduced to increase the availability of modern aircraft to operating commands.

Interim reworks are normally accomplished at specified periods between overhauls during the plane's service life



OVERHAUL OF JET ENGINES IS FULL DAY'S WORK AT NAS JAJ

During interim rework, outstanding service changes are incorporated and necessary rework is accomplished to permit satisfactory operation of the aircraft for a specified period. Purpose of the interim rework program is to permit incorporation of complex changes and reduce long interruptions to the operating status of the aircraft caused by overhaul during the early months of its service life.

Service tours for newer aircraft have been changed recently to reflect the interim rework program. These new planes will normally have a first tour of 38 calendar months with two interim reworks of two months each during the first service tour. Then they go into major overhaul before beginning the second and last 30-month tour which includes one interim rework.

After its last service tour, the plane goes to Contingency Reserve if there is an OPNAV mobilization requirement for it. Otherwise it is turned over to BUAER for disposal.



DRESSED FOR HIGH ALTITUDES, PILOT CLIMBS INTO CRUSADER

Since hitting the fleet with VX-3 in November 1956, the *Crusader* has provided solutions to many old complaints. A pilot-actuated variable incidence wing is one of its unique design features. Raising the variable incidence wing eliminates the high angles of attack for landing and take-off that are required in other modern airplanes. With the wing in the lowered or down position, the *Crusader* retains its high performance capabilities. Its 1956 Thompson Trophy award speed of 1015 mph is most comforting, say the pilots.

The *Crusader* has left them happy all down the line. Rarely has a plane reached the fleet with so few hitches; the first F8U-1 landed on a carrier deck on the first anniversary of the prototype's first flight. During that first year, *Crusader* carried out the most comprehensive flight envelope (altitude, speed, endurance) of a fighter plane tested, all without a significant hitch.

Hot as the *Crusader* seems today, it's far from the last word in fighters. Before the *Crusader* even hit a carrier deck, research engineers in BUAER, OPNAV and the aviation industry were plying their brains to come up with better, faster, more powerful airplanes. While F8U-1's were still being rushed off factory assembly lines in June, the Navy announced that a higher powered, more versatile, all-weather fighter, designated F8U-3, was under development.

SURE, THERE'S the expected red tape in the business of providing the right planes to the fleet at the right time. There are the frustrations of working four years and more to get the plane from drafting table to carrier deck. But BUAER works constantly to keep the best planes arriving as they are needed.

Two instances of recent nature best point up the way BUAER and America's aircraft industry team to provide the Navy with good aircraft; first, the Douglas AD attack plane that has gone through seven modifications while serving as everything from "the workhorse of Korea" to an inflight refueler. And then there's the "off the shelf" variety of Navy plane, the R4D plane so aptly named *Que Sera Sera*—whatever will be, will be—that landed at the geographic South Pole with its 9200 foot elevation and minus 58-degree cold October 31, and took off again. These planes, and others, as you can see, are built to last.



OPERATIONAL TRAINERS HELP FLEET PILOTS LEARN NEW PLANE

BUAER employs one of four means of striking an airplane.

The first strike category is *Damage*, which might occur at any point during the plane's lifespan.

Category Two is a *Depreciation* strike in which a plane is considered neither economical nor practical to restore to service.

Category Three strikes are *Administrative*. They may be made for obsolescence, excess of requirements, transfer to MDAP, diversion to ground training or technical use, transfer to another government agency, intentional destruction in test or training; jettisoned, abandoned or cannibalized as militarily advantageous during combat operations, or as planned expenditure of drones.

Category Four strikes are made when the plane reaches its *Completed Standard Life*. The Grumman F9F-5 *Panther* is approaching Category Four as this article is written. Accepted into the fleet in quantity in 1951, the F9F-5 has run the gauntlet and proudly joins its ancestors, the F4F, F6F and other combat bearers of the Grumman colors.

Nowadays the hottest day fighter in the fleet is the Chance Vought F8U-1 *Crusader* which a project officer in BUAER describes as "nearer the state of the art than any Navy plane in service today" and which fleet pilots describe as "a new era in Navy flight." It is almost revolutionary.



GRAMPAW PETTIBONE

More Fuelessness

An R4D-8 with six hours of fuel aboard was nearing its home base after a three-hour cross-country flight. When 16 miles short of the field, the port engine began to cut out, followed by misbehavior of the right engine.

After securing the port engine, and with the starboard engine running only intermittently, the pilot, a Reservist, placed his *Skytrain*, gear up, flaps down, on a hillside 13 miles from the home station. The eight occupants of the aircraft were uninjured; the R4D sustained substantial damage.

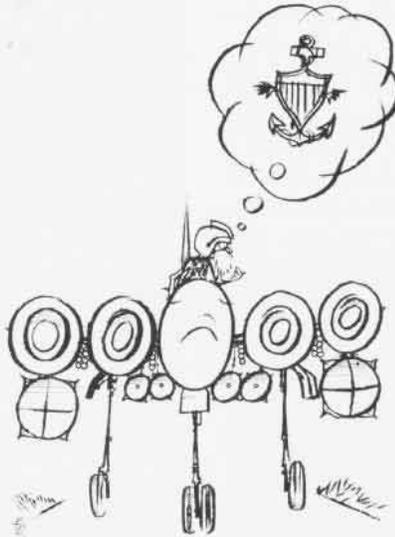
The pilot was a 6000-hour aviator with a valid special instrument rating and with hundreds of hours in the R4D. The copilot was a qualified naval aviator with 1500 total hours, of which 120 hours had been flown in R4D's. He held a standard instrument rating.

The investigation into the aircraft's fuel system and engine operation showed no malfunction or abnormality of any nature. No leakage of fuel could be discovered and the fuel tank selector valves operated normally. Both engines can be operated so as to draw fuel from the same tank at the same time, not an unusual situation.

A fuel log was not kept on the flight. The pilot switched to several different tanks in rapid succession after the engine failure, indicating a lack of definite knowledge as to whether any fuel remained aboard or the location of any remaining fuel.

The accident board concluded that the pilot inadvertently operated both engines from the right rear auxiliary fuel tank simultaneously while the fuel quantity indicator was indicating the quantity of fuel remaining in the left rear auxiliary tank. When the tank in use ran dry unexpectedly, the pilot used improper restarting procedures, according to the report.

The board recommended that pilots be cautioned against the possibility of placing fuel quantity indicators and tank selector valves on different tanks



and that all pilots comply with regulations pertaining to the utilization of fuel logs.

In his endorsement on the AAR, the CO of the air station stated: "Crew error, aside from the plane commander, is considered a secondary cause since the copilot and the plane captain should have been fully cognizant of the fuel management being employed. If the hypothesis of the board is correct, both engines ran from the same tank for a period of about one hour with no change in the quantity indicated by the gauge which was on an-

other tank. The copilot and the plane captain should have noted this.

"The copilot was not designated a T2P, and the plane captain appears to have been not properly qualified. Supervisory error is, therefore, included as still another secondary cause of the accident."



Grampaw Pettibone Says:

Here we go again, my achin' blood pressure! This pilot just plain doped off. There's no other explanation for such an experienced aviator to get booby-trapped this way.

There's been such a rash of multi-engine fuel mismanagement accidents this year that the old pea patch is gettin' mighty crowded. I'm convinced that this country's highways would be traffic-jammed with stalled automobiles if the gasbuggy drivers had more than one fuel tank to select from.

It's high time any airplane drivers who don't recognize the need for being constantly aware of the quantity, location and availability of the fuel aboard got with the program. Maybe if all commands and all pilots would undertake a fuel management education program and would also insure that all flight personnel are fully qualified for the jobs assigned, just maybe we'd have this thing licked. The time is now—before the engine and old Grampaw Pettibone start sputtering and blowing their gaskets.

Boy! From NOW ON we bring in the FUEL LOG!



Home-Made Mush

A ski-equipped P2V-7 had returned from a routine supply mission to the Geographic South Pole, IGY Base, evacuating 11 huskies from that base for humanitarian (canineatarian) reasons. The dogs were offloaded and three handlers hitched them to a sled. Upon the command "mush," and undoubtedly because of recognition of their home, the dogs took sled, handlers *et al*, in a straight line home.

The P2V-7 just happened to be in the straight-line path. Prior to impact, the drivers and handlers evacuated the sled, allowing the unattended vehicle to hit the underside of the empennage of the *Neptune*, slightly denting the side of the tail skag. The runaway dogs and vehicle were not recaptured short of their objective.

It seems that the dogs were hungry and cold and had their kennel of the previous winter and an ample supply of seal meat in sight. Action to omit further occurrence of accident was listed as follows: (1) park aircraft carrying canine passengers with unobstructed trail line to kennel, (2) no more transportation for dogs being scheduled.



Grampaw Pettibone Says:

Doggone, they shoudda checked where they parked before they debarked.

Deadly Friendships

Aviation is a highly skilled profession and a camaraderie develops among men wearing wings. The strong bonds of friendship which evolve sometimes cause the shortcomings of one of the brotherhood to be "overlooked" after he has had an accident.

Investigation of a recent fatal accident to a junior officer disclosed that his squadron mates, motivated by a

false sense of friendship, failed to make known to their senior officers that this particular pilot was endangering his own life by continuing in a flying status. A series of related near-accidents, and a lack of motivation (of which other junior officers were individually aware) established a pattern which indicated that this pilot should not have been in the cockpit of a high-performance airplane. The right word at the right time might have saved a life.

Commanding officers must re-emphasize the inherent responsibilities and supervisory duties of all officers to



recognize and advise the senior squadron officers of those aviators whose flying abilities are sub-standard and/or dangerous.



Grampaw Pettibone Says:

I had intended to sound off on the same subject, and since those aviation safety specialists down at the Naval Aviation Safety Center stated the case so well in a *Weekly Summary of Major Aircraft Accidents*, the story is told in their words. Nuff sed!

Dear Gramp:

In the March issue you wrote an article, "Gramp Roars," which we feel is more roar than truth. Possibly you will blush again if you reread OPNAV Instruction 3750.12 and discover that the scope of the instruction is for jet type aircraft and that no mention is made of other tricycle gear aircraft.

We feel that your expansion of the scope of this instruction to include *all* tricycle gear aircraft is a mistake, particularly for the S2F. The S2F main gear is considerably heavier and heftier than the nose gear, and it would appear that a landing in the boondocks would cause the main gear to dig in, putting great stress on the nose gear which would cause it to collapse. Should this occur it seems that the pilots



would be staring clods in the face.

In conclusion, we feel that your piece has caused some confusion and consternation among us propeller pilots, particularly S2F drivers. Until further clarification on this subject is presented, we intend to advise our pilots to land wheels up on unprepared terrain.

LTJG, USNR, VS
(Safety Officer)



Grampaw Pettibone Says:

You've given some convincing arguments, and a little local poll I've taken shows that there are some others who agree with you concerning the sub-hunting S2F.

But I won't blush, as you suggest, upon discovering that the instruction refers only to jet aircraft because, as a matter of fact, I had read the rough draft and was present at the birth of the instruction. It was issued only after considerable statistical study which clearly indicated that gear should be down on boondocks landings of jets and gave good indication that gear should be down for most tricycle gear recipis.

I'm stickin' to my guns on the general rule I tried to present in the March issue—greater safety to the greater number would result if all boondocks landings of tricycle gear aircraft (jet and prop alike) were made with the gear down, as opposed to all having the gear up. To keep the small uproar down, mebbe I shoulda sed that any general rule is subject to possible exceptions. But, at least, a lot of thought has been provoked, along with a few pilots.

The people at the Naval Aviation Safety Center are well along on a study looking into the entire gear up/down problem as it relates to the various aircraft models. I'm reserving judgment on the S2F until I read their findings which, I anticipate, will provide a good statistical basis for squadron CO or individual pilot decisions.

DCNO (AIR) AIDE RETIRES



VADM. DAVIS PRAISED MISS BAKER HIGHLY

ADMINISTRATIVE Assistant and Secretary to the Deputy Chief of Naval Operations (Air), Miss Gertrude E. Baker, known far and wide in Naval Aviation circles, retired the end of July with appropriate ceremonies after more than 39 years of service.

Naval Aviation leaders and her co-workers, in paying tribute to Miss Baker's work, gave her a silver bowl, appropriately inscribed, in appreciation of her long and faithful service to the cause of U. S. Naval Aviation.

There are probably no air Admirals, active and retired, who do not know Miss Baker as friend and associate. There's a good reason: she was a secretary to many of them. They learned to respect deeply and value highly her certain discretion and comprehensive knowledge of Naval Aviation that went back to World War I before there was a Bureau of Aeronautics.

Miss Baker, reporting to the Navy Department 18 March 1918, was given an assignment which foreshadowed her future. She went into the office of the Director of Naval Aviation in the Office of Naval Operations, and there among her many duties, helped to type the *News Letter*, known now as *Naval Aviation News*.

At that time, Capt. N. E. Irwin headed the division with LCdr. John H. Towers as his assistant. The next year, she worked for Lt. Richard E. Byrd, Jr.

In 1920, she became the secretary to Capt. Thomas T. Craven, the director of Naval Aviation, and when Capt.

W. A. Moffett relieved Capt. Craven, Miss Baker went on in the same position.

With the establishment of the Bureau of Aeronautics in 1921, Capt. Moffett became Chief of the bureau with the rank of Rear Admiral, and of course, his secretary was Miss Baker. She had thus become fully embarked on her unusual career from that time to her retirement, which kept her continuously at the side of whoever was directing Naval aviation.

Tirelessly and efficiently Miss Baker worked for these Chiefs of the Bureau of Aeronautics: Rear Admirals E. J. King, A. B. Cook, J. H. Towers, and J. S. McCain.

When the office of the Deputy Chief of Naval Operations (Air) was established in 1943, RAdm. McCain transferred to that office with the rank of Vice Admiral. Miss Baker continued to be his secretary, and later these Vice Admirals who held the office relied upon her service: A. W. Fitch, M. A. Mitscher, A. W. Radford, D. B. Duncan, J. D. Price, C. T. Durgin, J. H. Cassady, M. B. Gardner, R. A. Ofstie, T. S. Combs, and W. V. Davis, Jr.

With great quietness and unflinching integrity, Miss Baker did her work. She was "never at sea," and her poise, friendly spirit and immense capacity made the task of the leaders she served less arduous than it might have been.

Miss Baker has returned to her Massachusetts home where she may be reached at 305 South Main Street, Attleboro.

Shoulder Patch Adopted First Air Unit Sports Identifier

Iwakuni's Patrol Squadron Fifty became the first aviation unit in the Navy to receive authorization to wear



VP-50 PERSONNEL ADMIRE SHOULDER PATCH

identifying shoulder patches under a recent ruling from BUPERS.

Authorization for enlisted personnel below the grade of chief petty officer to wear ship name shoulder patches has been in effect for more than a year. Believing that similar patches for aircraft squadrons would enhance morale as well as identify, VP-50 sent a letter to BUPERS recommending that squadrons be allowed to wear patches.

Approval was realized in short order along with a sample patch, and immediately local tailors provided the necessary quantity of black and white markers.



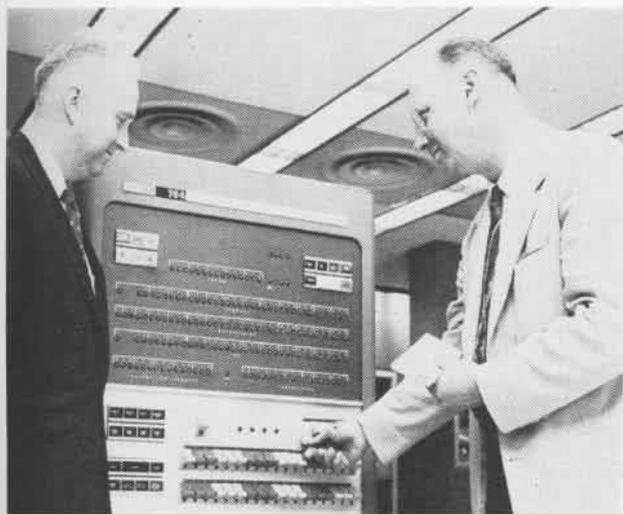
LTJG. LARRY A. BUSH is congratulated by Cdr. Ralph Hein at Whiting Field upon completion of 1200 accident-free hours of instructing student pilots in SNJ's, T-34's and T-28's.

Skywarrior Goes to Pacific A3D's Aboard Bon Homme Richard

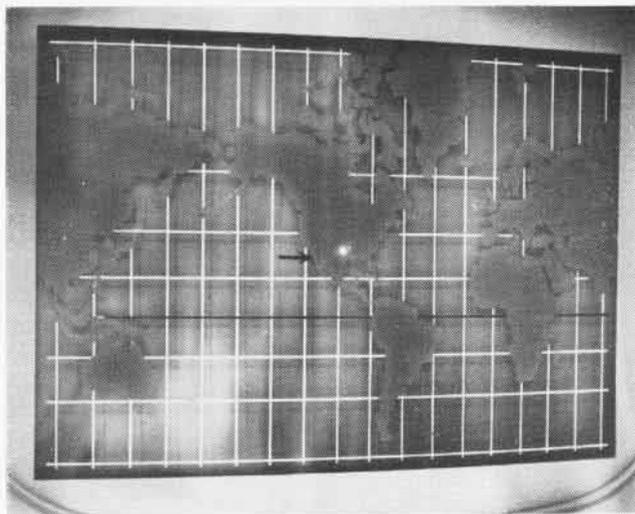
"Something new has been added" to the USS *Bon Homme Richard* (CVA-31), currently operating in the Far East with the Seventh Fleet. For the first time in Pacific Fleet history she carries an A3D detachment as part of her air task group. The Douglas *Skywarrior* has been operating in the Atlantic aboard the *Midway* class carriers, but this marks the first time the plane has "shipped to sea" in the Pacific area.

The big twin jet bomber, weighing 70,000 pounds, is the Navy's newest, largest and most powerful carrier-based bomber. It can fly at least 600 mph and can attack its target from a height of over 40,000 feet. The A3D is powered by two 10,000 hp engines and carries a crew of three.

Cdr. H. L. Salyer commands the detachment of 2 planes from VAH-2



J. J. FLEMING, of NRL, and Dr. Paul Herget, Director of the Cincinnati Observatory at console of IBM 704 Data Processing Machine.



PATH OF THE earth satellite will be shown as a tiny moving white dot on the IBM 780 Cathode Ray tube shown above (see the arrow).

SATELLITE CENTER INAUGURATED

THE VANGUARD Computing Center, where high speed electronic calculations will predict future orbits of U. S. scientific satellites, has opened its doors at 615 Pennsylvania Avenue, N.W., Washington, D. C. The Center will be operated under a Navy contract by International Business Machines Corporation, using an IBM electronic data processing system.

The computing units are rigged to whip out complicated calculations fast enough to anticipate the paths of satellites hurtling around the world every 100 minutes. Magnetic tape, used for data storage, is the primary means of input and output to and from the heart of the computer at the rate of 2500 words per second. As many as three tapes can be read at once.

Linked to the machine is an IBM 780 Cathode Ray Tube Display Unit. The unit visually displays, as on a home television receiver, the output of the computer in the form of graphs, geometrical figures, engineering symbols, or words and numbers. It will actually picture the satellite's orbit.

Some of the toughest problems in establishing earth satellites for scientific research involve proving that the satellites are orbiting, measuring these orbits, and predicting future orbits. NRL scientists say that tracking the 18,000 mph satellites will be as difficult

as locating a golf ball travelling at the speed of sound at 60,000 feet altitude.

Minitrack stations (see NANews, July 1957, page one) will measure angular positions of the satellites as they pass overhead and flash the data to the Vanguard Control Center at NRL. Here it is relayed to the Computing Center where IBM 704, the computing system, will calculate and compile the timetables of expected locations of each satellite at regular intervals. The schedules, signaled to optical tracking stations around the world, will allow watchers to train their instruments at the right place and time for precise observation of the

artificial moons as they streak over.

Minitrack stations will be located at: Blossom Point, Md.; Ft. Stewart, Ga.; Batista Field, Havana, Cuba; Coolidge Field, Antigua, B.W.I.; Mt. Cotopaxi, Quito, Ecuador; Ancon, Lima, Peru; Antofagasta, Chile; Peldehue Military Reservation, Santiago, Chile; and Navy Electronics Laboratory, San Diego, California. There will also be one at Woomera, Australia, which will be operated by the Australian government working in full cooperation.

The Vanguard Computing Center, considered the heart of the Minitrack system, will be in constant testing operation as facilities are completed.

It is expected that observers inside and outside the huge picture windows of the Computing Center will be able to have a grandstand seat at the passage of the satellites via the Cathode Ray Display Unit.

When things get dull at the television-like show, visitors are welcome, during normal office hours, to go through the adjacent exhibit area. It features major contributions to the Earth Satellite Project by industrial, governmental, and research organizations. Included are models of the rocket vehicle, the satellite itself, and technical instruments with which scientists expect to learn more about the nature of the earth and its surrounding forces.



NRL SCIENTISTS examine overlay for Cathode Ray tube for visual presentation of tracking.

• XP3Y-1



• SNV



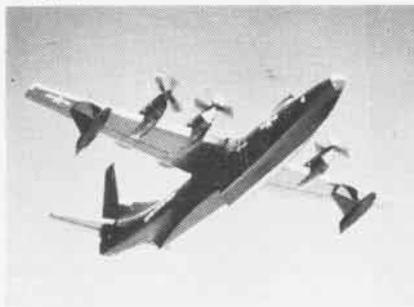
• PBV-6A



• PB2Y-3



• R3Y-1



CONVAIR

A LITTLE MORE than 34 years ago, on 29 May 1923 to be exact, Maj. Reuben H. Fleet founded the Consolidated Aircraft Corporation in East Greenwich, R. I. Fleet was a member of the U. S. Army Air Service from 1917 until 1922, and remained active in the field of aviation until his retirement following WW II.

Today, the organization Fleet founded, now called Convair, is a prime producer of aircraft for the U. S. Navy and Air Force, and commercial airlines. It plays an important role in research, development, and production of guided missiles.

Navy's association with Convair dates back to 1925, when it placed an order for the NY-1 trainer. A development of this aircraft, the N2Y, was used to train pilots in fixed-wing aircraft operations from rigid dirigibles. These airships were designed to accommodate six fighters in their hulls. Airplanes were lowered from the hull by a hook and took to flight from this in-air position. To return to its nest, the plane flew under the dirigible, caught the hook, and was lifted into the hull.

In December 1928, Consolidated, then at Buffalo, N. Y., delivered the PY-1 *Admiral* to the Navy. The first of a long line of flying boats, the PY-1 was designed for long distance patrol. The monoplane featured externally-braced wings and a single-step type hull. The PY had a single cockpit in the nose, followed by a side-by-side pilot's cockpit well forward of the wing, with another cockpit aft. Its two 425-hp P&W *Wasp* engines gave the *Admiral* a speed of 118½ mph.

Principal production for the Navy in the early '30's was the P2Y-1 flying boat, a further development of the *Admiral*. This long range reconnaissance bomber differed from the PY-1 mainly in its power plant, which consisted of two 575-hp P&W *Hornet* engines. The pilot's cockpit was enclosed and two short lower wings were added.

On 7-8 September 1933, six of these flying boats, piloted by VP-5F, flew

non-stop from Norfolk to Coco Solo, making a record distance formation flight of 2059 miles in 25 hours, 19 minutes. Four months later, these same six aircraft, this time with pilots of VP-10F at the controls, made a non-stop formation flight from San Francisco to Pearl Harbor in 24 hours, 35 minutes. This broke the world's record for distance in a straight line for Class C seaplanes with a new mark of 2399 miles. P2Y production ended in 1937, but work was underway on a four-engine patrol flying boat.

In 1935, Consolidated had moved to San Diego, near the municipal airport, Lindbergh Field. At this time, it was developing the XP3Y-1 flying boat, featuring integral wing fuel tanks. Wing tip stabilizing floats were arranged to fold up to form the wing tips when in the air. The P3Y was the prototype of one of the Navy's most famous planes, the PBV *Catalina*.

In October 1935, the XP3Y-1 was ferried from the East Coast to the West Coast via Panama. During this flight, the flying boat established a world's distance record, amassing a mileage of 3443 miles in a non-stop flight from Coco Solo to Alameda.

The *Catalina* has secured for itself a niche high in the annals of aviation history. One commercial PBV, named *Guba*, made a record in its own right during the late '30's and early '40's. It was the first flying boat to fly around the world; first aircraft to circle the globe at its greatest diameter; first seaplane to cross the Indian Ocean, Australia to Africa; first to make the long over-ocean non-stop flight by flying boat, Dakar to Virgin Islands; and first flying boat to fly non-stop coast-to-coast in the United States.

In the fall of 1939, both France and Great Britain placed orders for the *Catalina*. The U. S. Navy ordered 200, one of the largest contracts for airplanes ever awarded by the Government up to that time. The *Cat* was powered by two 1000 hp P&W *Twin Wasp* engines, with normal cruising speed of about 120 mph. On later models, Wright *Cyclone* engines were

also used. The *Cat* appeared in several configurations: PB4Y-2, -3, -4, -5, -5A, -6, and -6A ("A" for amphibian).

Prime missions of the PB4Y during WW II were rescue and patrol bombing. It also served as a cargo carrier, dive bomber, and in one or two instances, as a torpedo plane. It was a PB4Y of the British Navy that located the German battleship *Bismarck* as it attempted to sneak home from Norway. On the Neutrality Patrol just before America's entrance into the war, the *Cat* operated from Newfoundland, Labrador, Greenland, and Iceland. Just after the Casablanca beachhead was secured in Africa, the *Cat* was operating from Port Lyautey. During the war, *Catalinas* were used for ASW patrol in the Western Atlantic and Mediterranean.

In the Pacific, the PB4Y's were in the fight to save the Philippines. The last two aircraft to leave Corregidor were *Cats*, filled with evacuees. It was a PB4Y that located the Japanese force attacking Dutch Harbor in the Aleutians, and another that located the enemy approaching Midway. PB4Y-5A's launched the first night torpedo attack on surface ships marking the opening blow of the Battle of Midway. The *Catalina*, painted black, and striking at night, harassed Japanese shipping in the Southwest Pacific. It was appropriately dubbed the *Black Cat*. Hundreds of pilots, aircrewmembers, and ship-based personnel were bailed out of the Atlantic and Pacific as a result of successful air-sea rescue missions performed by the PB4Y.

Four years before America's entry into WW II, Consolidated was working on the PB2Y *Coronado*, a four-engine patrol flying boat. This plane was to see action during WW II performing search and rescue missions, transport service, and bombing. The *Coronado* was powered by four 1200-hp P&W *Twin Wasp* engines. More than 170 PB2Y's were produced for the Navy. By 1943, a number of PB2Y-3's were converted to transports by the removal of war equipment and installation of special passenger and cargo carrying facilities.

The WW II-proven *Liberator*, used

by the U. S. Army and Royal Air Forces, was also produced by Consolidated for Navy. This four-engine bomber, designated PB4Y-1, was powered by four 1200-hp P&W *Twin Wasp* engines. It carried a crew of from seven to ten. Its maximum speed was over 300 mph; its service ceiling, 26,000 feet. The PB4Y-1's maximum range was 3200 miles; its range with 8000 pound bomb load, 1600 miles.

The PB4Y-2 *Privateer*, a development of the PB4Y-1, was a long-range overseas bomber reconnaissance craft. The first prototype flew on 20 September 1943. Basic changes from the earlier model included the lengthening of the fuselage to accommodate additional electronics gear and replacing the PB4Y-1's twin tail assembly with a single vertical fin to increase cones of fire for the aft guns and to better aircraft stability.

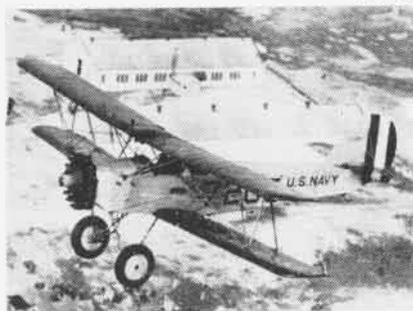
Besides reconnaissance, PB4Y's were used in anti-sub warfare, and anti-shipping strikes. PB4Y-1's, together with *Catalinas*, were the first U. S. Navy planes based in England to hunt German U-boats in European waters. Their missions played a large part in the success of the Normandy invasion. During the last days of the Pacific war, *Privateers* carried operations to the Yellow Sea around the Korean peninsula.

Designation of the *Privateer* was changed in the early 1950's to P4Y. During the Korean conflict, it was used for patrol and weather reconnaissance. Detachments based in Korea performed flare-dropping missions for the Marines during night combat operations in that area.

During the war years, Consolidated manufactured the SNV *Valiant*, a two-seat basic training monoplane, for both the Navy and Army. The trainer was powered by one 450 hp P&W *Wasp Junior* engine, or Wright *Whirlwind* engine. Featuring dual controls and full navigation and night flying equipment, the plane had tandem cockpits beneath continuous transparent hooding. Production of the trainer ceased in the summer of 1944, after 11,537 had been delivered to the Navy and Army.

★ This is the ninth in a special series of feature articles on companies which manufacture aircraft for the Navy. It was written, as were most of the others by J. K. Ready, J03. ★

NY ●



XP2Y-1 ●



PB4Y-2 ●

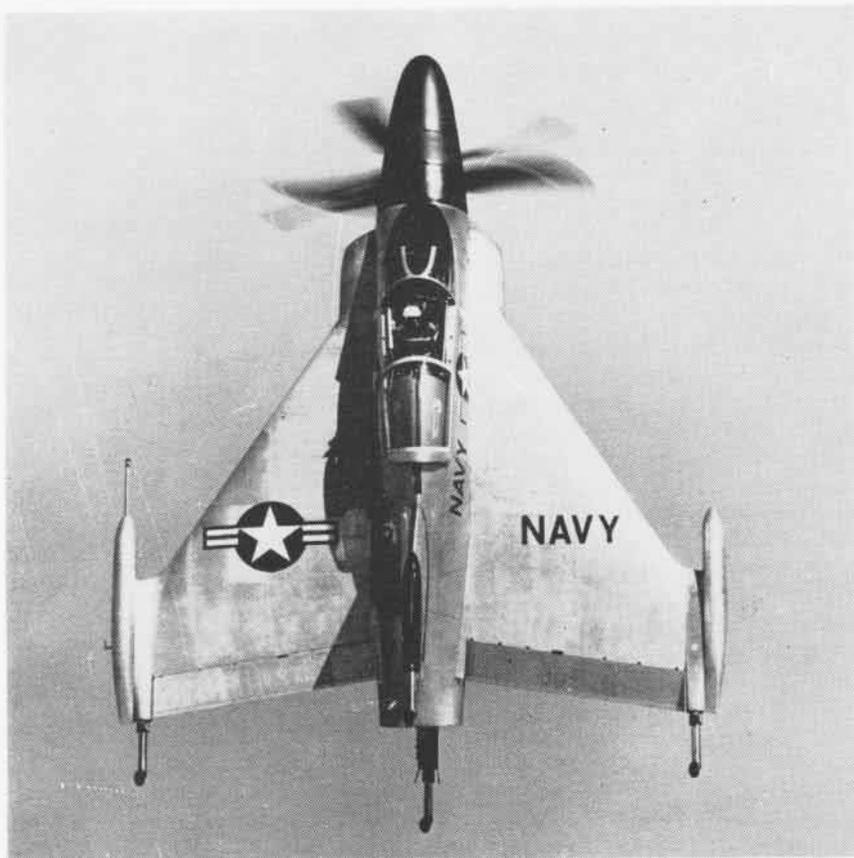


R4Y-1 ●



XF2Y-1 ●





XFV-1 POGO WAS WORLD'S FIRST VERTICAL TAKE-OFF AND LANDING FIXED-WING PLANE

On 18 March 1943, the Consolidated Vultee Aircraft Corporation was formed. First step towards merger of Consolidated and Vultee occurred in December 1941, when Vultee Aircraft, Inc., acquired 34 percent of the common stock of Consolidated.

In the late '40's, Convair was developing the XP5Y-1, a high performance long range patrol flying boat. A pioneer in its field, this boat was powered by four 5500-hp Allison T-40 airscrew gas turbines. Its first flight was made on 18 April 1950.

The Navy placed a production order with Convair for a transport version of this flying boat, and designated it the R3Y *Tradewind*. First production *Tradewind* flew on 25 February 1954. With top speed of more than 350 mph, the R3Y's can haul up to 24 tons of cargo or an assault company of Marines more than 2000 miles without refueling.

The R3Y-1 can carry 80 passengers in its rearward facing seats, or with seats removed, it can carry 72 litter patients. The R3Y-2 can carry 103 passengers or 92 litters. Both versions

have complete air conditioning and pressurization systems, the first ever built into water-based aircraft. The

second version is similar to the first except that the nose section of the hull is hinged to swing upwards to permit direct loading of vehicles and heavy cargo.

On 9 April 1953, Convair's XF2Y-1 *Sea Dart* made history on its first flight. This experimental twin-jet delta-wing fighter seaplane was the first combat type aircraft to be equipped with retractable hydro-skids. The second prototype, powered by two Westinghouse J-46 engines exceeded Mach 1 in a shallow dive on 3 August 1954, and became the first waterbased aircraft to fly faster than sound. The *Sea Dart* never was put into production. However, it provided a wealth of hydrodynamic knowledge to Convair and BUAER scientists and engineers. Convair is currently conducting hydrodynamic tests in San Diego Bay and on the open sea to prove out a smaller and much lighter single hydro ski configuration.

The XFV-1 *Pogo* was another daring experiment in flight. It was designed to take off and land vertically, while at the same time possessing all the qualities of a high speed fighter in horizontal flight. The short, stubby fuselage had a delta wing in the mid position, with the fin and rudder and a matching underside fin at right angles to the wing. At the ends of these airfoils were caster wheels which



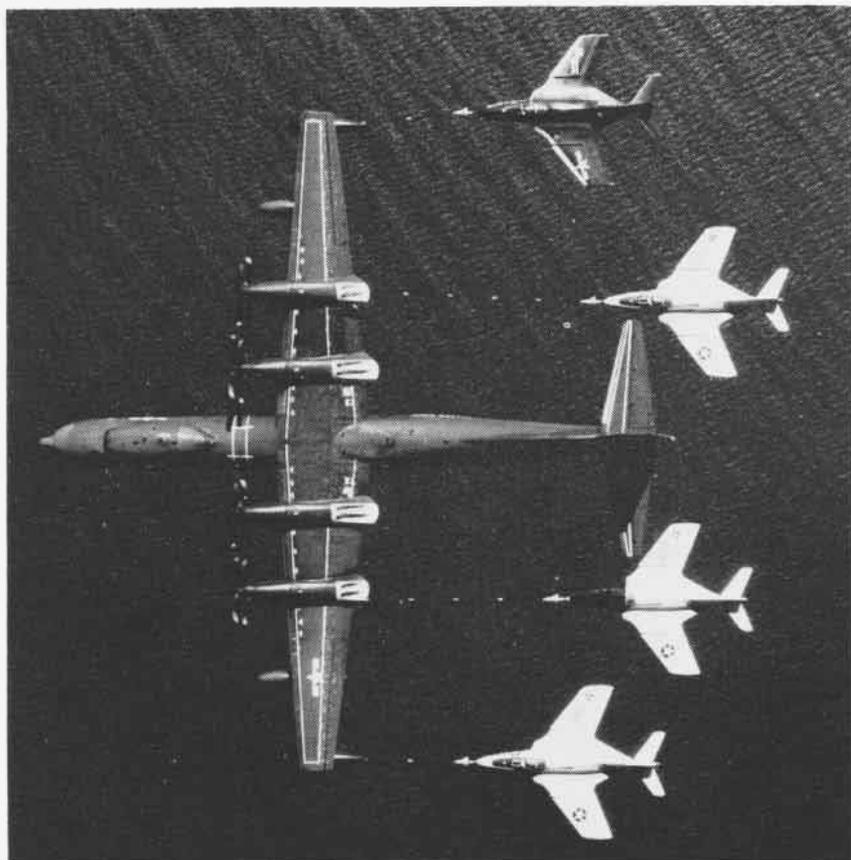
THE TERRIER, ABOARD USS BOSTON, IS A SURFACE-TO-AIR ANTI-AIRCRAFT GUIDED MISSILE

served as landing gear, since the normal static attitude of the craft was vertical. The cockpit was mounted in gimbals so that it assumed correct and comfortable positions for take-off, landing, and horizontal flight. The power plant consisted of a 5850-hp Allison YT-40-A-14 turboprop engine driving a six-blade airscrew.

After extensive tethered tests in an airship hangar at Moffett Field, the XFV-1 made its first free vertical take-off and landing on 2 August 1954. Its first transition from vertical to horizontal flight and back to the vertical for landing was accomplished exactly three months later. The *Pogo* project is now finished and Convair plans to send the craft, the world's first VTOL fixed-wing aircraft, to the National Air Museum.

Consolidated Vultee merged with General Dynamics Corporation on 30 April 1954. Its name was officially changed to Convair, a Division of General Dynamics Corporation.

The first of an order of 36 R4Y-1 cargo transports was delivered to the Navy by Convair in mid-1955. This aircraft is designed to carry cargo, passengers, or litter patients, and is powered by two 2400 hp P&W engines. It can carry 44 passengers or 27 litter patients. The R4Y-1 has a maximum speed of 314 mph, and an average cruising speed at 20,000 feet of



TANKER VERSION OF THE R3Y TRADEWIND CAN REFUEL AS MANY AS FOUR JETS IN THE AIR

284 mph; landing speed is 85 mph.

The Division is currently working on plans for a Navy three-engine prop

patrol seaplane, designated P6Y. Designed for short take-off and landing runs, the craft will be able to operate from rough and restricted water.

Convair's general offices are located in San Diego, as is its parent plant. Underway in this area is a new facility, the Astronautics Division. Here Convair will carry on vital research and development in intercontinental ballistic missiles. Another large plant is located at Fort Worth, Texas. At Pomona, Calif., Convair produces the *Terrier* missile for the Navy and Marine Corps. At Daingerfield, Texas, Convair operates an Ordnance Aerophysics Laboratory for BUORD. Here, under the technical direction of The Johns Hopkins University Applied Physics Laboratory, Convair investigates the field of ramjet-powered guided missiles.

Convair is a leader in supporting both military and civilian aviation. With its strong combination of scientific knowledge and physical facilities, Convair, a Division of General Dynamics, plays a prime role in America's dynamic aircraft industry.



R3Y-2 CALLED 'FLYING LST,' CAN DISCHARGE MEN AND CARGO DIRECTLY ON THE BEACH



GUARDING ONE of six Grumman S2F Trackers in Naples, Italy, are two members of the Carabinieri. The airplanes were awarded Italy under the Mutual Defense Assistance Program.

Capo Di Toulada Invaded Operation Combine Held in Italy

A two-day combined amphibious assault exercise, called Operation *Combine* was held this summer in Sardinia, Italy. British, Italian and U. S. naval forces participated.

The training exercise featured the landing of 600 battle-ready Royal Marine Commandos and 1700 United States Marines. Troops from U. S. and British cruisers, already ashore, opposed these "aggressor" forces.

Carriers, cruisers and destroyers of the U. S. Sixth Fleet and the British Mediterranean Fleet provided simulated shore bombardment and gave close air support for the assault forces.



AN EXAMPLE OF ADDED range potential for Navy jet aircraft occurred while CVG-12 was on a WestPac cruise aboard the USS Lexington (CVA-16). An all-weather interceptor F3H-2N Demon, piloted by VF-124, replenished its fuel supply in air from an AJ Savage, flown by VAH-6.

This Flier Volunteered Called to Make 17th Presentation

Lt. Jack M. Stevens of VP-26 at NAS BRUNSWICK, Maine, has become victim of his own good nature. In January, his church group was caught short of entertainment for a program coming up.

Stevens jokingly volunteered to show some slides and movies he'd made in the Arctic during the summer of 1956.

Since then he's been invited to make the same presentation 17 times. Most of his audiences have been in the Bath area but some have been more than 100 miles away.

He gained Arctic experience flying P2V's in support of DEWLine in 1956.

VP-16 Gets New Syllabus Teach Navigators, ASW Evaluators

VP-16 at NAS JACKSONVILLE has begun a new navigational training syllabus designed to train navigators and anti-submarine evaluators. The program provides on-the-job and classroom exercises.

The syllabus includes lectures in dead reckoning, celestial navigation, use of navigational aids and practice in the Sonobuoy and ASW trainers.

Officers put classroom techniques to use on profile and on navigation hops.



RADM. ROBERT F. Hickey, ComFAir Alameda, inspects one of eleven giant R3Y Tradewinds at NAS Alameda. His guide is Cdr. Ned L. Broyles, CO of Fleet Tactical Squadron Two.

VMF(AW)-531 is Brotherly 3 Sets of Brothers Form Jet Crew

Three sets of brothers serve in Marine All-weather Fighter Squadron 531 at MCAS CHERRY POINT. Privates first class Ronald and David Boston were the latest to check in.

Already aboard were brothers Eugene and Carl Mentz—both corporals—and the Welch brothers, 1st. Lt. Charles A. and Sgt. Philip. So VMF(AW)-531 claims it can easily field a keep-an-airplane-in-the-air team from brother combinations alone.

Lt. Welch flies an F3D *Skynight*, brother Phil repairs radar, radio and electrical systems. Both Metz brothers are jet mechanics and the Boston brothers are metalsmiths.

Firestone Gets Contract To Make Steel J-57 Engine Parts

Two contracts totaling \$1 million have been awarded Firestone Steel Products Co. for stainless steel combustion chamber weldments for Pratt and Whitney J-57 engines.

J-57 engines are used in the A3D, F4D, FSU-1, F100, F101A and the B-52.

Cuban Navy Gives Plaque Air Students Trained Under MDAP

The Cuban Navy has presented a bronze plaque to the Naval Air Training Command: "In proof of gratitude for the training of officers, cadets and aviation technicians of our Naval Air Forces." Cuban aviation personnel have been trained in the United States under MDAP since 1952.

Capt. R. E. Riera, Chief of Staff to the Chief of Naval Air Training, accepted the plaque at Pensacola.

MAG-36 PRACTICES VERTICAL ASSAULT



FORMATION OF MARINE helicopters on board *Thetis Bay* (CVHA-1) gets ready to take to the air from the copter-carrier flight deck.



MAG-36'S MAINTENANCE squadron men perform an engine overhaul on an HUS helicopter, one of largest in use by USMC on West Coast.

THE MARINES, long famed for their assault operations, have kept themselves abreast of the times. Vertical envelopment is a relatively new concept, and Marine Air Group 36, MCAS SANTA ANA, has played an important part in its development.

Commissioned in June 1952, the mission of MAG-36 is to provide helicopter transportation of men and supplies for the Fleet Marine Force. This support is especially vital during ship to shore movements, and within an objective area during an amphibious assault.

Commanding officer of the air group is Col. F. R. Payne. His exec is LCol.

J. A. Gray. There are six squadrons operating out of MAG-36: Helicopter and Maintenance Squadron 36, Marine Air Base Squadron 36, HMR-361, HMR-362, HMR-363, and VMO-6. During the past year, the group took part in all West Coast Fleet Marine Force exercises with troops from the First Marine Division at Camp Pendleton. The vigorous training has taken many of the group's copters aboard the USS *Thetis Bay*, the first copter-carrier.

Many MAG-36 pilots are qualified in fixed wing aircraft. The relationship between fixed wing aircraft and helicopters in vertical assault tactics is

essentially a very close one. During the assault phase, it is the attack bombers and fighters that take the place of artillery and naval gun fire. Fixed wing aircraft are virtually the copter's only support as it flies in combat Marines and supplies to the front.

Marine Air Group 36 serves a vital role in the successful maneuvering and transportation of the fighting Marines. The importance of the whirlybird in assault tactics is indicated by the recent Marine Corps decision to cut the weight and size of Marine ground forces in order to make them lighter and easier to transport by aircraft.



COMBAT-EQUIPPED Marines pile into an HRS copter on board *Thetis Bay* during an assault operation using vertical envelopment tactics.



COL. F. R. PAYNE, CO, LCol. Gray, XO, and SgtMaj. Eugene Hawkins hold conference on the latest training exercise scheduled for MAG-36.

ACCENT ON 'PILOT MAINTENANCE'

By Capt. Carl E. Wilbur, MC, USN

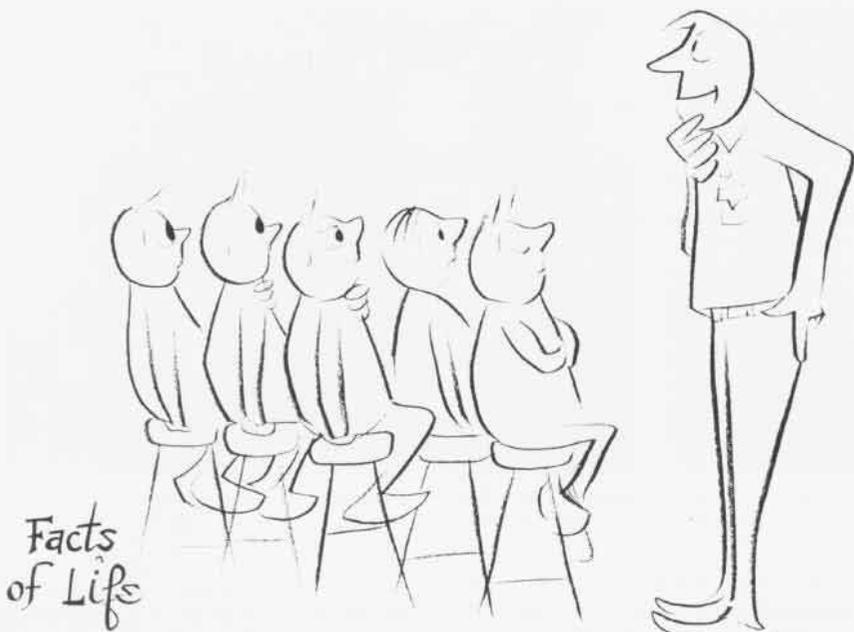
get," "overlook," "neglect" or otherwise fail to do what he is supposed to do.

Undoubtedly much is going to have to be done to build safeguards into the aircraft to reduce or offset "pilot error." A great deal of research, development and testing remains to be done to keep the pilot ahead of his plane. Meanwhile, the pilot who wishes to remain alert and alive can increase his chances for longevity by keeping in top physical form. Physically fit, he is able to react quickly and accurately to the demands of the supersonic plane, increase his power of concentration, and come in for happy landings.

The new instruction on pilot fitness points out that "bodily abuse in any form should be considered in the same light as improper maintenance of the aircraft." Major responsibility is placed on the individual pilot and aircrewman. He and he alone is responsible for maintaining his mental and physical fitness at peak levels and for promptly reporting any lowering of his fitness to competent authority. Occasional periods of "feeling poorly," "not up to par," "seedy," or "under the weather" may cause the individual some discomfort or inconvenience on the ground. But at high altitude, minor ailments can mean death. They narrow the margin of safety to unacceptable levels.

There are many factors which affect aircrew fitness, such as sleep, diet, exercise, use of alcohol, tobacco and drugs, mental and emotional attitudes. The precepts laid down in the instruction are those generally accepted as essential to good health, but their observance is urgent for those who spend many of their working hours in flight.

In a recent lecture at the Aero



OPNAV INSTRUCTION 3740.7, dated 25 June 1957, hits the high spots on an increasingly important subject, the care and feeding of pilots and aircrewmen. "Fitness of Flying Personnel" is certainly not a new theme, simply an old one that has become more complex and more important in the light of the demands modern aircraft make on human beings.

Once the limiting factor in man's attaining flight was the machine he was using; now it is the man who pilots it. While the airplane has improved beyond the dreams of the Wright brothers, men are still pretty much the same centuries-old model. A modern supersonic airplane imposes great and varied stresses on the human frame.

Year after year, accident reports have used increasingly the phrase "pilot error." In 1955, 64% of the Navy's aircraft accidents were attributed to this cause; only 22% were judged to be the results of "material failure." Thus one out of five accidents happened because something went wrong with the airplane. How about the other four? There is a great need to get down to the nuts and bolts, as it were, of the pilot and his environment as we invariably do when a material-caused accident takes place.

"Pilot error" is sometimes very nearly unavoidable. For example, a jet pilot reaches forward to trip an arming switch in a relatively inaccessible cockpit location. Inadvertently he presses against, or it might be said is forced to press against, the stick. In a jet aircraft, a mere 2° nose-down attitude can result in a 1000-foot loss of altitude in 2/10ths of a second. Should we say that the pilot errs in such a situation or rather that we have stacked the deck against him?

Consider the "pilot error" in a wheels-up landing. At the critical moment in the landing procedure when the pilot was supposed to make sure that his wheels were down, his attention was distracted by a garbled radio message. Certainly distractions on a job requiring vigilance are always bad, but for a pilot in jet aircraft they can be incredibly costly—and even fatal. In this instance, scratch one aircraft!

One of the differences between a crack pilot and a poor pilot is the attention the first gives to details. The crack pilot is meticulous, alert and accurate. But let him be a little tired, a little off-beat, and even though he is a whiz, he is likely in the event of distraction at a critical point, to look like a poor pilot. He too will "for-



Medical Association Convention, Capt. Jerome A. Moore, flight surgeon at NAS CECIL FIELD, described some of the findings he had made there:

"A check of aircraft accidents for the past year at NAS CECIL FIELD revealed that although the peak traffic hour was 0930 to 1030, twice as many accidents occurred from 1100 to 1200, a zero hour of low blood sugar. This might well suggest the role of hypoglycemia (low blood sugar level) in contributing to pilot error. Hypoglycemia is associated with weakness, dizziness, apprehension, easy fatigability and inability to concentrate—all unwelcome by the pilot in flight."

A recent accident at Cecil Field, Capt. Moore describes, illustrates this point. An accident is not usually the result of one mistake, and this was no exception. There were several factors—more than one error—and then the accident "happened."

Toward the end of a long flight, the pilot failed to review operational procedures as to load limitations. Then he decided to begin his bounce drill even though he knew he was heavy with 5000 pounds of fuel. Thereupon he decided to compensate by making a faster approach, then over-corrected and landed 100 feet short of the runway.

Now these were the proximate

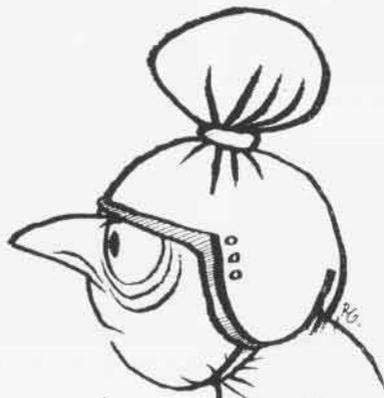


causes, but the interesting feature of this case is that although the pilot admitted he realized his errors at the time, he could not explain his actions.

Any one of these errors might have put him in jeopardy, but all combined made a smash-up inevitable. What was the pilot thinking? He wasn't. Hunger and fatigue had reduced his ability

to avoid the error even at the moment he knew he was making it. The last food he had eaten was breakfast at 0630. Just minutes short of nine hours later, at 1535, he made a crash landing.

OPNAV Instruction 3740.7 stresses an optimum diet which will provide essential nutrients such as proteins, carbohydrates, fats, minerals, vitamins and water. The principle is laid down that "food intake should be such that the body will not be forced to consume its own tissues for fuel." Intake of food and output of energy are to be balanced. Obesity is regarded as "incompatible with peak efficiency, longevity, and high altitude flight."



Emotional Strain

In his program at Cecil Field, Dr. Moore solicited the cooperation of mess managers. Calories were reduced, excess fats were barred, and the salad schedule was stepped up.

A broad program was inaugurated two years ago and by May of this year, 1500 persons had lost over 18,000 pounds of excess weight. Not only that but there was a universal drop in blood pressure. Everyone connected with Cecil Field benefitted. One individual achieved the following impressive statistics: while losing 100 pounds in 12 months he pulled down his blood pressure from 220/120 to 134/84.

In general, the men who had lost weight and established better eating habits were ready to give ringing testimonials to the new program: "I am more agile and able to move around better at work and in sport." Again, "I have felt mentally alert and physically stronger. And again, "I have

I GET MIGHTY SICK
OF ALWAYS BEING
TOLD IT WAS PILOT
ERROR



noticed a 2G increase in G tolerance."

In the instruction, there is a very clear statement on the subject of alcoholic beverages: "Alcoholic beverages are erroneously considered to be 'stimulants.' The reverse is actually true: Alcohol is a powerful depressant and anesthetic. The effect of the depressing action on the brain is to quickly impair judgment and muscular control.

"Early in the course of intoxication the loss of discrimination may give the illusion of stimulation or exhilaration. The further course of bodily impairment, leading to unconsciousness, is common knowledge. [Yes, we know: jocose, bellicose, lachrymose, somatose, and comatose.] The liver can oxidize about one-third of an ounce of alcohol per hour. This process continues until all of the alcohol is oxidized or eliminated from the body, and many hours may be required, depending on the amount of alcohol consumed, for the body to recover completely.

"It must be recognized that flying requires the most alert nervous control, muscular coordination and judgment. Pilots who are impaired by alcohol, even to the slightest degree, should be grounded until fully recovered."

The aim of OPNAV Instruction 3740.7 is to stress again the general principles of physical fitness. Everyone agrees in regard to pilots and aircrewmembers that you keep them in the blue by keeping them in the pink.

POWERFUL FORRESTAL IS SHOW



TAILS OF MODERN DEMONS ARE A FRAME FOR ANCIENT ATHENS



PREFLIGHT BRIEFING OF VF-84 PILOTS BY COMMANDER J. W. ELLIS



CREWMEN PUSH AN FJ-3M FURY INTO POSITION FOR LAUNCHING



ON HER FIRST MEDITERRANEAN CRUISE THE USS FORRESTAL,

LARGEST ship ever to sail in the U.S. Sixth Fleet in those waters. In July, she relieved on station in mid-July, and

During the six months following her commissioning, *Forrestal* steamed over 40,000 miles to 15 ports of call in six countries and thousands of aircraft embarked in the ship.



EVEN A SUPERCARRIER LOOKS SMALL FROM THESE DEMONS' ALTITUDE

TO MEDITERRANEAN COUNTRIES



SHOWED OFF SOME OF THE NAVY'S NEWEST AND FINEST AIRCRAFT

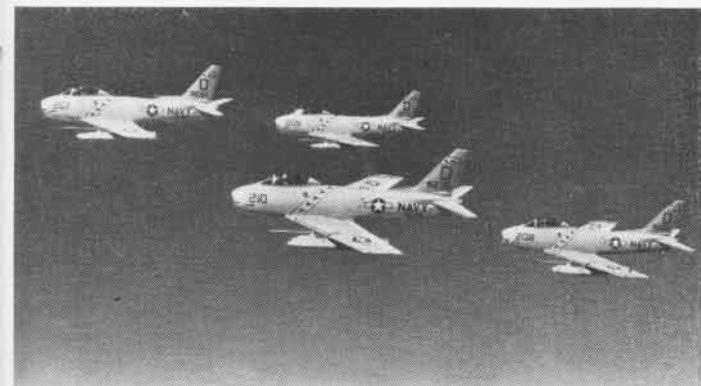
erranean Sea, the giant aircraft carrier, completed her maiden deployment with the shadow of the Rock of Gibraltar, she was returned home to the United States. Upon her departure from Norfolk last January, the carrier made this considerable distance she made 13 port calls, where she showed the ship and more than 65,000 fascinated visitors.



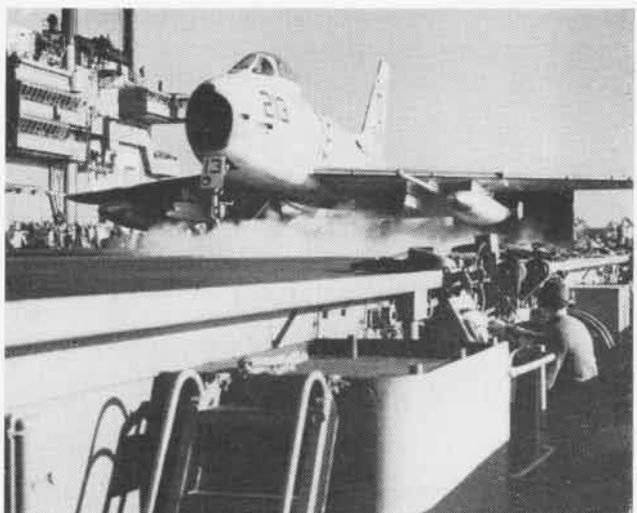
FORRESTAL'S PLANES ON DISPLAY FOR VISITING NEAPOLITANS



THE AI OFFICER BRIEFS VA-76 PILOTS DURING NATO EXERCISE



VF-84 FURIES FROM THE FORRESTAL FLYING IN DIAMOND FORMATION



A FURY SEEN AT INSTANT OF BEING CATAPULTED FROM CVA-59

WHEREVER the *Forrestal* appeared in the Mediterranean area, she was the object of awed interest and wonder at her size and her planes. Whenever she anchored and opened her gangways to visitors, her tremendous decks were crowded with guests that ranged from royalty to small orphans.

Some of the dignitaries welcomed aboard included President Chamoun of Lebanon, Prince Rainier and Princess Grace of Monaco, the Shah of Iran, Crown Prince Moulay Hassan of Morocco, and Prime Minister Menderes of the Republic of Turkey.

During her underway periods at sea, the *Forrestal* played host to nearly a thousand press representatives and military observers. NATO Ground Forces Commander, Lt. General Hans Spiedel and Dr. Josef Rust, Undersecretary of Defense for the Bonn Republic, embarked for *Forrestal* participation in NATO exercises, headed those foreign observers. Chief of Naval Operations Adm. Arleigh Burke also made a visit aboard to observe operations.

The squadrons embarked for the cruise performed air demonstrations, including sonic booms by those planes with that capability, for many of the visiting foreign officials. These displays of the modern tactics of Naval Aviation invariably left an obvious impression on the foreign observers as to the potential of Naval Air Power in the Sixth Fleet, and in the Mediterranean.

In many of the Mediterranean's finest ports, officers and men of the *Forrestal* and her Air Group served as ambassadors of good will as they visited such tourists' Meccas as Gibraltar,



VF-14 TOPHATTERS, IN OPERATIONS LULL

Barcelona, Cannes and Paris; Taranto, Naples and Rome; Athens and Rhodes; Istanbul, and Beirut.

The ship's choir sang at local churches in a number of these cities, and the CVA-59's sea-going sportsmen continued a Navy practice of entering into various competitions with Mediterranean athletes. In some of the cities visited, local residents were given a change of pace, and a glimpse of strict Americana when they were favored with a concert by the ship's hillbilly band now known internationally as the "Forrestal Ramblers."

But the *Forrestal* was infinitely more than a sprawling hulk of good will. And the men aboard her had many duties to perform before visitors aboard, or liberty ashore could be considered.

From Gibraltar to the Golden Horn of the Bosphorus, the mighty *Forrestal* and her planes were a symbol of U.S.

Naval Power, and of our determination to insure the freedom of our Mediterranean friends and allies. In April when events in the Mid-East seemed nearing the crisis stage, the *Forrestal* was dispatched forthwith to the scene. Her persuasive and quieting presence in Eastern Mediterranean waters was a powerful deterrent to any flare-up. Her pilots flying their planes in full sight of the troubled area, ready for action, were a warning to the powers who might have chosen the Jordanian crisis as an opportunity to plunge the Middle East into conflict.

In addition to the operation relative to the April crisis, and to the regularly scheduled commitments, the ship and her squadrons participated in five NATO exercises, three national operations, and a British-American exercise.

During the round-the-clock operations called for in these exercises, long hard hours were the rule rather than the exception. But all personal inconveniences were ignored as all hands exerted every effort for the successful completion of each exercise.

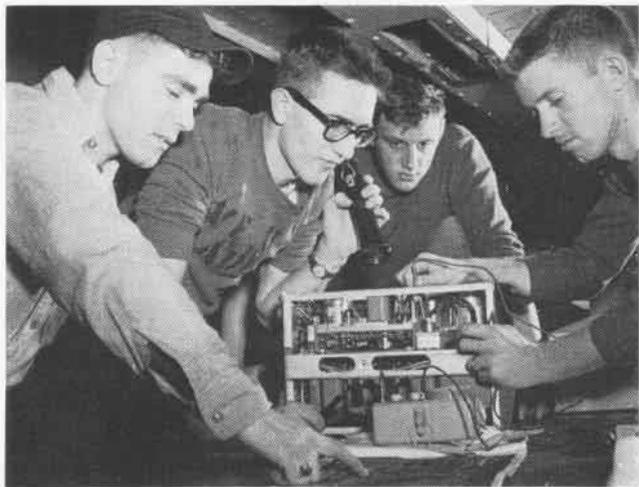
The striking arm of the *Forrestal*, Carrier Air Group One, was composed of squadrons using some of the Navy's most up-to-date planes: Fighter Squadron 14 in the needle-nosed F3H-2N Demons; Heavy Attack Squadron One flying A3D-1 Skywarriors, largest carrier based plane; Attack Squadron 15 in dependable AD-6's, all home based at NAS JACKSONVILLE; VA-76, "Fighting Spirits of 76" in F9F-8B Cougars, and Fighter Squadron 84 flying FJ-3M Furies, both squadrons based at the jet base Naval Air Station, Oceana.



CATAPULTING V4H-1 SKYWARRIOR FROM THE FORRESTAL'S DECK



ORDNANCEMEN ATTACH SIDEWINDER TO WING LAUNCHER ON FURY



VF-84 RADIO GANG GILBERT, GORDON, TAYLOR, STEWART (R)



MAINTENANCE CREW INSPECTS FURY AFTER INTERMEDIATE CHECK

COMPLETING the Air Group were detachments of VAW-12 in radar-heavy AD-5W's; from All Weather Attack Squadron 33 flying night-seeing AD-5N's; from VFP-62 in *Panther* photo planes, and Helicopter Utility Squadron Two.

Oldest carrier-based squadron, VF-14, the Tophat Squadron, is the first operational squadron to fly the supersonic *Demons*. The *Forrestal* cruise was the culmination of an intensive training period for the Tophatters, which began with the FIP of the F3H-2N a year earlier. At that time, squadron CO, Cdr. Walter Roach, led the group of VF-14 pilots as they put the *Demon* through its paces, proving its worth as a first line Navy all-weather interceptor. Several months, and much training later, came acceptance of 12 new *Demons* and the "Fighting Fourteen" was ready to go to sea.

Primary mission of VF-14 is the interception and destruction of enemy aircraft during darkness or bad weather, though they can also be effective day fighters. The *Demon*, armed with four 20mm guns and *Sidewinder* air-to-air guided missiles, would be a powerful deterrent to any would-be aggressor.

To VAH-1 went the honor of first flying *Skywarriors* in the Mediterranean area. Accomplishments there of these high speed, twin-jet planes, with their nuclear bombing capabilities, added further proof of their present great versatility and a prediction of their worth in any armed conflict.

Attack Squadron 15 could be said to

be comfortably at home both in their Douglas *Skyraiders*, and in the Mediterranean. Presently flying AD-6's, VA-15 first became acquainted with the AD in 1949 when they turned in their old TBM's for the new planes. The squadron's first deployment to the Med came early in 1951, embarked in the *Coral Sea*. They engaged in their first Sixth Fleet exercise then. Most recent operations with the Sixth Fleet were flown from the *Forrestal*.

When 14 *Furies* of VF-84, led by Cdr. J. W. Ellis, streaked over NAS OCEANA in the early morning hours of 22 July, they were marking the end of a very successful first deployment to the Mediterranean. From beginning to end, high aircraft availability was maintained by the crews. Through an all hands' effort, the squadron continually fulfilled its schedule and logged an impressive number of sorties.

Though short, number-wise, on planes and pilots, the Nighthawks of

VA(AW)-33 were long on flying hours logged. During the six months' cruise the detachment's five pilots, "centurions" all, flew 1395 hours, each logging over 100 landings on the *Forrestal*'s deck. Specializing in night attack, they made 134 night landings.

Led by Lt. Hap Gower, the *Nighthawks* performed a variety of missions, including All Weather Attack, Special Weapons delivery and Antisubmarine Warfare.

In choosing an emblem for their squadron, VA-76 selected a cocked hat and musket, symbols of the American Revolution and the Minute Men who were ready to fight against all odds. Instead of the gear of their 18th century counterparts, VA-76 pilots are equipped with hard hats and F9F-8B *Cougars*, capable of delivering conventional or atomic weapons on any aggressor.

Although the squadron is only two years old and has not experienced combat, it demonstrated in all exercises participated in by the *Forrestal* that its emblem was rightly chosen. Among the missions performed by VA-76 were: making simulated special and conventional weapons strikes, flying close air support, and combat air patrols.

The *Forrestal*'s cruise to the Mediterranean was followed by a short availability period in her home yard at Portsmouth, Va. Then, to fulfill her further commitments, she embarked her assigned squadrons, VF-84 again among them, and steamed into the North Atlantic where she is participating in "Operation Strikeback," one of the largest NATO exercises ever held.



SOME 'FIGHTING SPIRITS OF SEVENTY-SIX'

SPOTLIGHT ON RESERVE ACTIVITY



ASST. SECNAV(AIR) Garrison Norton inspected personnel at NARTU Anacostia in June. With him are Capt. L. E. Harmon, NARTU CO, and LCol. J. P. Sigmund, Marine Air Res. Tra. Detach. CO.

SecNav(Air) at NARTU

It was like coming home for the Honorable Garrison Norton, Assistant SecNav (Air), when he inspected personnel at NARTU ANACOSTIA.

A former Navy pilot, Mr. Norton flew from this base during WW II. He congratulated the NARTU for winning the CNATra Trophy for the year 1956.

Reservists Tour Chincoteague

Guided Missile Group Two, NAS CHINCOTEAGUE, hosted the Naval Reserve Composite Company 5-48 from Washington, D. C., in late June. The visitors consisted of 30 Congressmen and officers of the Navy and Marines.

Capt. T. K. Wright, CO of the station, and Cdr. W. B. Coley, skipper of GMG-2, were among those who conducted the tour. The mission and operations of the *Regulus I* guided missile were explained and static displays of equipment were on view.

The Reservists saw an actual launch, two fly-bys, and recovery of a *Regulus*. The "bird" was put through its paces as high speed control pilots, in FJ-3D *Furies*, executed high and low speed approaches at minimum altitude. Final control was transferred to the recovery pilot in a TV-2D, who controlled it into its landing. The missile demonstration ended as the parachute brake attached

to the *Regulus* opened, and it was brought to a smooth stop.

Guests wanting a taste of jet aviation were given rides in squadron TV's.

Reserve Admiral on Randolph

RAdm. William W. Drake, USNR, European and Middle East correspondent for the Los Angeles *Times*, spent two weeks of active duty on the attack carrier USS *Randolph*.

"The Sixth Fleet is Europe's primary insurance," said RAdm. Drake who spent WW II in the Pacific theater, and subsequently made his home in China, Germany and France.

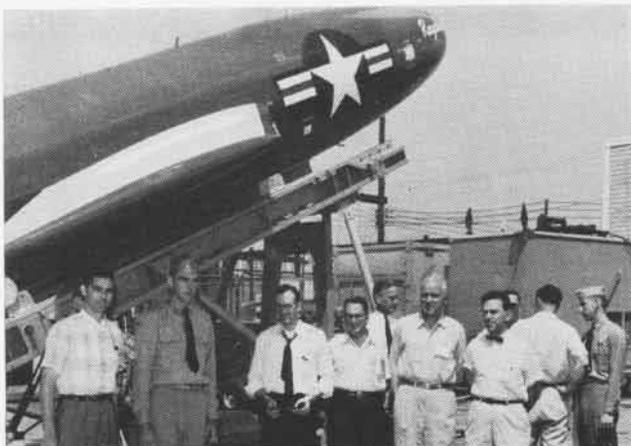
"You are right here with weapons and men who know how to operate them," said the veteran newsmen.

Admiral Drake's cruise aboard the *Randolph* marks his seventh yearly tour of U. S. carrier operations in the Med. This is the third cruise that Admiral Drake has made with the *Randolph's* skipper, Captain D. F. Smith.

Spokane Hosts Clinic

NARF SPOKANE was the site of the Fourth Annual Pilots' Clinic sponsored by the Spokane Chamber of Commerce. The clinic provides a thorough and interesting refresher course for private plane operators.

CAA regulations, accident prevention, aerology and proper radio procedures were some of the topics discussed this year. The group of over 150 flying enthusiasts conducted simulated operations from the mock control tower.



SOME OF THE Washington area visitors at Chincoteague take time out after a briefing. In background is *Regulus* guided missile display.



LCDR. J. C. FULTON, CO of VP-741, Jacksonville, presents hard-hats to ADC's: (L to R) J. W. Nelson, R. C. Williams, and W. J. McMillon.



A **MOCK TOWER** to aircraft communications set-up in full swing at small plane operator is acting as tower controller. The others the Fourth Annual Pilots' Clinic at NARE Spokane. One civilian on the circuit are requesting landing and take-off instructions.

Approximately 50 small aircraft, of all makes and models, arrived at the air facility. The oldest to park on the Navy ramp area, a Waco GXE-10 two-seated bi-plane, was powered with a 90 hp Curtiss OXX engine for a top speed of 95 mph. It had no brakes which necessitated a Navy man on each wing to place it in "chocks."

The Naval Air Reserve Facility was proud to contribute to the success of the clinic whose purpose is to make "safer pilots out of private pilots."

Reserves to Cherry Point

Marine Air Reserve units from the western sections of the U.S. trained at MCAS CHERRY POINT this summer. This marked the first year since their transition from props to jets that these squadrons visited the station.

The exercises, tabbed Operation *Vigor*, included squadrons from Denver, Glenview, Lincoln, Minneapolis, New Orleans, Spokane, and Olathe.

All phases of Marine Corps aviation and basic military subjects were covered. The two-week training included many hours of flying, studying, lectures, and the other work necessary to maintain the Reservists' proficiency. The active duty cruise paid dividends in squadron readiness.

The second phase of *Vigor* was held for Marine squadrons in the east. MCAS

EL TORO acted as host for the Reservists during the last part of August.

Oakland Range Riders

The eyes of NAS DALLAS were upon the jet "cow hands" of NAS OAKLAND during the two-week active Naval Reserve training period of VF-872.

Working hours were devoted to maintaining flight proficiency in the 14 F2H *Banshees* and two TV-2 jet trainers flown from Oakland. Before their tour, the California cow pokes practiced ropin', ridin' and shootin' to insure prowess on the Texas range.

Cdr. S. K. "Davey" Crockett is CO.



W. LITTLE, AOC, rides F2H "Old Paint." Lts. R. Saylor and H. Martin await their turns.

Grosse Ile Rewards Valor

Capt. C. A. Keller, CO, NAS GROSSE ILE, chose the occasion of the annual military review to officially recognize the bravery of Mr. Leslie Ostrum.

BGen. Frank C. Croft, Commander, Marine Air Reserve Training, presented



BGEN. FRANK C. Croft, USMC, presenting the good neighbor award to Mr. Leslie Ostrum.

a good neighbor award certificate to him, as 2000 Navy and Marine Corps Reservists stood at attention.

Disregarding his own safety, Mr. Ostrum went to the aid of a Marine Corps Reserve aviator who crash-landed his disabled attack bomber in a field near the Ostrum residence.

FURY 'BRAVO' FIP AT MOFFETT

THE NORTH American *Fury*, widely used and praised in the Fleet, is chalking up even more laurels for itself. At NAS MOFFETT FIELD, the FJ-4B, latest of the *Fury* jet line, successfully completed its Fleet Introduction Program in eight weeks.

The FJ-4B is a specially modified *Fury*, which has been earmarked for Navy attack squadrons. Its armament versatility, its speed and range, all combine to help the plane meet the requirements of its mission.

Trials were conducted through the facilities of VF(AW)-3, with LCdr. W. E. Hammett as Officer-in-Charge. Pilot and enlisted detachments came to Moffett from four California Navy and Marine Corps air stations. Represented were men of VF(AW)-3, Moffett; VMF-223, MCAS EL TORO; VA-36, NAS ALAMEDA; and VA-126, NAS MIRAMAR. Added assistance came from enlisted personnel of FASRon-8, -10, -12, and Headquarters and Maintenance Squadron, El Toro, California.

Navy and Marine ground crews can take a great deal of the credit that all flight schedules were met owing to the high rate of availability of the six FJ-4B's.

The first part of the Moffett FIP was devoted to all the requirements normally scheduled for new aircraft. These included familiarization, tactics, night flying, formation work, and air-to-air gunnery flights.

The last phase of the program was aimed at testing the attack capabilities of the *Bravo*. This featured weapons operation and the aircraft's ability to carry quantity and variety of stores, or armament.

This *Fury* model is armed with four 20mm cannon and has six external store stations which can carry attack ordnance of all types. Four of these six stations can carry external fuel.

At Crow's Landing, about 40 miles east of Moffett, the FJ-4B's were put through their paces streaking in at ground targets, launching their rocket loads, and strafing with the 20 millimeter cannon.

To test the *Bravo*'s low altitude bombing system, FIP pilots took their planes to Camp Beale, about 100 miles north of Moffett Field. Bullseye targets provided the marks for pilots to practice and perfect "loft-bombing" maneuvers, a relatively new concept in attack tactics.

Approaches to the targets were made practically "on the deck," lowest point being about 150 feet altitude at near sonic speeds. Timing themselves after reaching the initial point, an easily recognizable ground position a specified



PLANE CAPTAIN PLACES INTAKE GUARD ON THE FJ-4B USED IN FIP



FOUR EXTERNAL FUEL TANKS GIVE FURY 'BRAVO' A HIGH RANGE



FIP OFFICERS LEAVE LINE AFTER PUTTING FURY THROUGH PACES



FJ-4B ATTACK AIRCRAFT CARRIES LOAD OF SIX ROCKET PACKS. AFTER DELIVERING THE STORES, THE PLANE DOUBLES AS A FIGHTER

distance from the target, the pilots held their course until the timer indicated the start of a climb.

Holding four G's climb on course, the practice bombs automatically separated from the *Furies* at a precise spot near the top of the loop. Tossed free, the bombs arc away from the flight path and down to the target below. To complete the maneuver, the aircraft continues over in its "Cuban Eight," rolling from inverted to normal flight and heading away from the target area.

Once familiar with delivery techniques of "loft bombing," FIP pilots achieved excellent accuracy. They were able to score at will with loft, and also with "over-the-shoulder" delivery. In this latter maneuver, the pilot waits until over the target to begin his pull-up. The release point for over-the-shoulder comes slightly later than in loft,

with the bomb arcing up and down in a vertical plane. Pilots also put the planes through the familiar dive bombing runs from high altitudes.

The Fleet Introduction Program is designed to test new aircraft before delivery to the Fleet. The FJ-4B FIP marks the first time that this program took place on the West Coast. Trials are usually conducted at the Naval Air Test Center, Patuxent River, Maryland.

Bravo Furies are presently coming off North American production lines, ready to be delivered to Navy and Marine Corps attack squadrons. The FJ-4B has proved itself to be another first line addition to the Fleet's striking arm. FIP pilots and maintenance men demonstrated its availability, performance, range, weapons versatility, speed—all the ingredients necessary for a successful attack aircraft.



FIP PILOTS INSPECT THE FURY 'BRAVO'



GROUND CREWS READY FURY FOR FIP FLIGHT



CREW CLEANS CANNON AFTER STRAFING

THE 'MIRACLE' OF THE HILL



WITH PICKS AND SHOVELS, MARINES AND NAVY MEN BEGAN CUTTING AWAY HILL-TOP



NAVY HELP, UP THE HILL TO NEW HOME

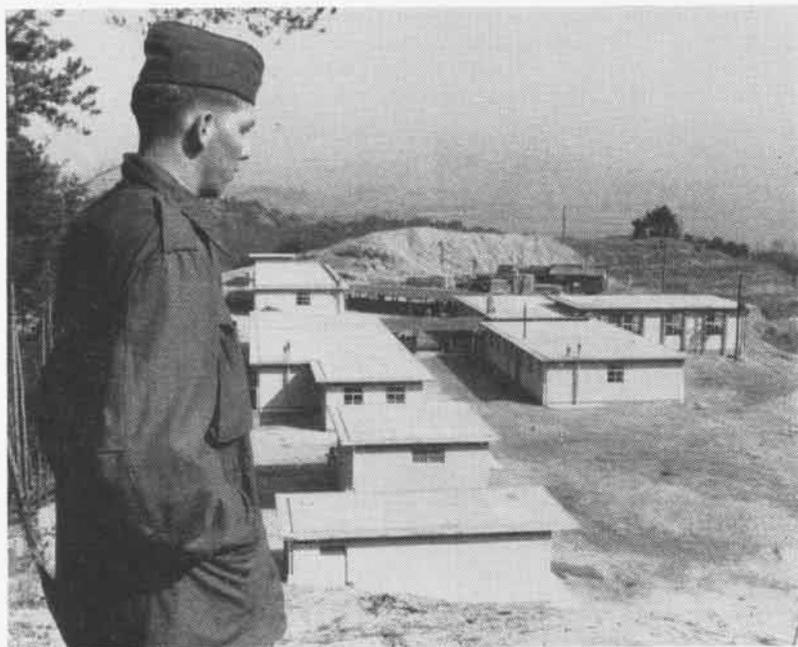
THE GARDEN of Light Orphanage in crowded Hiroshima, Japan, had to be relocated. Land for a new home had been given, on the top of a hill a few miles away. The orphanage had money enough to level and clear the hill, or build the new home, not both.

Mother Superior Elizabeth Nagata appealed to the "Christian Soldiers" of

NAS IWAKUNI. Could they help her?

They could and did. Several hundred Marines of the First Marine Air Wing and Navy personnel from NAS IWAKUNI undertook to cut down the hill and level a six-acre site for the orphanage. "Operation Tykes Peak" lasted two years and went far beyond the project of cutting down the hill.

Men were transferred, but replacements took over on the weekend volunteer project and the work went on. And now the "miracle" is near completion. The once unlivable area is covered by beautiful modern buildings surrounded by pine trees. Here the happy children are safe to play and to grow strong in their hilltop home.



TWO YEARS LATER, MARINE PAUL CANARY LOOKS OVER COMPLETED ORPHANAGE



WORK OVER, MARINES TEACH WONDERFUL GAMES

39-Year Vet Ships for 6 He's Leading CPO at NAS Iwakuni

New leading chief at NAS IWAKUNI, Japan, is Wilard Hitesman, ADC, who's completed 39 years in Naval aviation and just re-enlisted for six more. He reported to IWAKUNI in July with VA-55 from the carrier *Hancock*.

In 1918 Hitesman was assigned to lighter-than-air. Since then he has been an aircraft rigger aboard the USS *Langley*, the Navy's first carrier, has served on the *Saratoga* that was sunk off Guadalcanal, the new *Yorktown*, the *Lexington*, *Essex* and *Ranger*.

Tours of Navy duty which included three wars and even a stint with Marine aviation have taken the pipe-smoking, tattooed grandfather of three to almost every nation in the world.



HITESMAN RECALLS 'OLD DAYS' OF FLIGHT

Band Scores Hit on Hornet Happy Accompaniment to Work

They're playing musical war games in the Seventh Fleet.

From 0500 to 2200 on a typical workday aboard the flagship *Hornet*, plane pushers, ship's company and air group crewmen waken to the strains of martial notes, sweep and swab down in rhythm to the beat of "Dixie," launch and recover planes between bars of "Stardust" and finally turn in with the music still pulsing.

This innovation comes as a courtesy provided by ComAirPac at North Island. Five bands serve on a rotational basis aboard carrier division flagships in the WestPac area.

In four months aboard *Hornet*, Chief Musician Myron E. Burke's "Hornblowers" have endeared themselves to the crew.

In a Rock 'n Roll concert they can rock through *Hound Dog* without dropping a note, despite the racket created by *Cougars*, *Furies*

and *Skyriders* taking off and landing. The 17 members of Unit Band 162 can adapt to an 11-piece dance band, an eight-piece tenor arrangement or to a five-piece combo.

Instruction Books Ready Carrier Operations are Detailed

Latest publication of Aviation Training Division, DCNO(Air) is an instruction pamphlet (NAVAER 00-80T-61) entitled *Arresting Gear*. It complements another important publication released just previously, *The Steam Catapult* (NAVAER 00-80T-69).

Both instruction manuals describe the equipment, give something of the history of the development of catapults and arresting gear, and are well illustrated. They are designed to give pilots and crewmen a quick run-down on the apparatus and are written simply and clearly. The wide use of diagrams makes it easy for the reader to understand the facts presented.

Either or both of these pamphlets may be procured at once by naval activities by following the procedures as indicated in Naval Aeronautical Publications Index, NAVAER 00-500.

Highbake for Deepfreeze Baker Flies to Give Cake A Lift

The sight of a flat cake emerging from an oven dampens the spirit of every cook. If the locale is the South Pole and the problem is continuous a severe case of depression is apt to set in among bakers and troops.

When this sad situation developed during Operation Deepfreeze II remedial measures were quickly taken. A short wave call for help was relayed by the Red Cross to a U. S. flour mill. Within hours, scientists at the mill discovered why the polar cake bake was such a failure—altitude. The men in the Antarctic were trying to bake ordinary cake mix at 9,200 feet.

The scientists worked out a modification. To test it, the flour mill sent its home service director aloft in the company's twin engine executive aircraft, armed with a portable kitchen. When the plane reached the proper altitude she began baking with the new formula. The cake was a complete success.

A day later, a jubilant short wave message of thanks was sent from the South Pole to the flour mill. Rising cakes decidedly raised the morale.



HARD HATS earned in February examinations by 17 first class petty officers of USS *Shangri-La* (CVA-38). Standing: Umphress, YN1; Stridiron, DC1; Harkness, YN1; Berry, RD1; Otis, MM1; Parhum, SD1; Woods, MM1; Allen, GF1; Kafko, CS1. Kneeling: Stinnett, BT1; Romanick, MM1; Rasberry, BT1; King, AB1; Johnson, MM1; Gray, GM1; Williams, MM1; Keegan, YN1.

HELP FOR A GALLANT LAD

Hornet Boasts Hotsi Bath Flattop Sweatshop Hailed by Crew

Inspired by Japan's "hotsi" baths, crewmen on the USS *Hornet* have installed a steam bath on the 02 level.

The "Hornet Hotsi Bath" does not offer a rubdown or massage, but crewmen find it a real attraction. Pilots returning from high altitude flights find it relieves throat dryness caused by 100% oxygen. Others find it good for clearing slight colds or just plain relaxation.

Hornet's steam bath can accommodate four men at a time. It has adjustable temperatures. Hours are divided for officers and men.

For body building activities, an exercise room is located next to the steam bath. It has weight lifting equipment and punching bags, guaranteed to produce a pre-bath sweat.



EARLY BIRTHDAY PRESENTS FOR WILLIAM



HAND-CARVED SHELL JUNK, FORMOSAN GIFT

MOST OF THE many thousands of items the Navy uses, it buys. Some of them it manufactures. But a few of them it borrows. Perhaps the strangest thing the Navy ever borrowed is a birthday!

Movie star Jane Russell's birthday, 21 June, was officially borrowed by the U.S. Navy and officially presented to William Liao, a little nine-year-old Formosan boy. Of course, William had his own birthday, 8 July, but at the time it looked as if he might not live to celebrate it. So William was given the birthday, a birthday cake, a fielder's glove and a baseball when he and his father stopped in Yokosuka at the end of the first part of a long trip they were making from Formosa to Boston.

Back of the early birthday party and the long journey is a story involving American diplomatic, military and civilian officials all the way from Taipei to Boston, where William could have a chance to cheat death.

The little boy is a victim of "tetralogy of fallot," a congenital heart defect usually fatal unless corrected by surgery. Dr. Robert E. Gross, heart surgeon at Boston's Children's Hospital, learned of William's plight and offered to give his services if the boy could be brought to Boston. But the round trip from Taipei to Boston was prohibitively expensive for the Liaos.

The fact that William would almost surely die if he did not have treatment came to the attention of Karl Rankin,

U.S. Ambassador to Taiwan. He discussed the case with VAdm. S. H. Ingersoll, Commander, U.S. Taiwan Defense Command. From there the discussion went to Washington, and to Admiral Burke who authorized a humanitarian flight to America on military aircraft for the boy and his father.

When the two reached Tachikawa, Japan, they were brought to the Yokosuka Naval Hospital for the rest William needed for the transPacific flight.

VAdm. Roscoe F. Good, Commander Naval Forces, Far East, thought there ought to be a birthday cake for the little boy, whose own birthday was two weeks away. It was obvious that a birthday would have to be borrowed for the occasion. A message was sent to Com 11 requesting the use of Jane Russell's. This was speedily granted. So the admiral presented the frail youngster with a cake properly inscribed, along with the out-sized glove and the regulation baseball, and also his hope that William might soon be able to use his new baseball gear.

Not every story can have a happy ending, however. This is such a story. William and his father made the long trip across the Pacific, across the United States to Boston. There, unfortunately, Dr. Gross found that the surgery could not be performed.

And so the Liaos, father and son, made the long journey back to Formosa where William will live out the rest of his life that may be a short one.

Norfolk's New Training Aid Landing, Take-off Problems Shown

A three-dimensional display of the Norfolk Air Traffic Control Area has been designed and fabricated by the regional office of the Naval Training Device Center.

The 3-D display helps to familiarize aviation personnel with the complexity of existing instrument approach and departure procedures in the Norfolk area. It shows Navy pilots existing radio aids, airways, GCA patterns, ILS patterns, commercial and military air fields under cognizance of the Norfolk control area.

Clear and colored plastics, special lighting effects and an enlargement of a standard aeronautical chart covering the Norfolk area make the display a valuable classroom training aid.

O&R Jax Ends R4D Project Last Plane is Deep Freeze R4D-8

The last R4D *Skytrain* to be overhauled at NAS JACKSONVILLE's O&R Department has rolled off the assembly lines. O&R Jax is turning over the R4D project to private industry.

The last plane off the line is earmarked for Antarctic Operation *Deep Freeze III* after ground check, flight test, special paint job and upholstery.

O&R Jax has been handling the R4D project since 1945 and has been giving special treatment to Polar-bound airplanes for the past three years.

THE CHAMP TAKES ON SUPPLIES



TO MAINTAIN full operational readiness of the Lake Champlain during Sixth Fleet exercises in the Mediterranean, the supply ship Altair, AKS-32, comes alongside for at-sea replenishment



HARD HATS and life vests are indication of safety measures in effect during operation



SEAMANSHIP OF highest quality is required of all concerned during replenishment at sea



AN EXPERIENCED boatswain and a well trained crew offload tons of supplies in short time



UNLOADING, SORTING, stowing supplies at sea can be a wearisome job. But this is the means by which a ship can remain at sea, ready for operations, over long periods of time. Without the supplies in the boxes fencing the jets, no pilot could move a plane from the deck.

RED CHINA AIR FORCE GROWS



LINE-UP OF CHI COM FIELD EQUIPMENT PASSES BEFORE HOUND COPTER. THE TRUCKS ARE TOO LARGE TO BE CARRIED BY HOUND

THE CHINESE Communist Air Force (CCAF) has emerged as a potent military force in late years. Today it ranks fourth largest in the world. Developed with Soviet material and guidance, this growing force presents an increasing air threat in the Far East. Equipped with some of the latest Soviet operational equipment, the CCAF has a sizeable number of personnel with Korean combat experience.

A result of the 1950 Sino-Soviet treaty was the delivery of a large number of WW II props, plus latest jet-type air-

craft. This support aided in forming a naval air force.

The outbreak of the Korean War saw a rapid build-up of the CCAF, which was equipped primarily with fighters and light bombers. Although Chi Com jet light bombers and attack units were not used in Korea, a later indication of their increasing potential in tactical support operations was displayed in 1955. The Chi Coms attacked the Nationalist-held island, Ichiang, forcing the Nationalists out of control.

Following Korea, emphasis was put on the build-up of



JEEP, IN WINTER GARB, IS UNLOADED FROM A CHI COM HOUND



CHI COM AIRMAN, WITH WINTER GEAR, ARMS MIG JET FIGHTER



TROOPS LEAVE HOUND HELICOPTER DURING MANEUVERS. THIS USSR BUILT CRAFT IS SAME AS THOSE USED BY SOVIET AIR FORCES

the CCAF light bomber force. The Chinese were the first of the Sino-satellites to receive the *Beagle* light bomber.

More recently, emphasis once again was placed on improvement of the air defense force. In support of this build-up, well integrated airfield and radar systems are in progress. The airfields include those situated along the coast opposite Taiwan, suitable for staging offensive air operations, and numerous others disposed in depth for support and training operations.

The vast Communist China land mass presents advantages and disadvantages with respect to capacity of the CCAF to support air operations. Extensive coasts and long, exposed land borders next to non-Communist areas in the south and west, require large-scale air defense effort.

LOGISTIC SUPPORT is hampered by extent of the area and often the limited and inadequate roads and rail patterns. Coastal water and river shipping facilities supplement the road and rail systems. The Chinese mainland, however, is an important base for offensive air operations against naval forces operating in nearby waters.

Besides air force equipment, and much of the spare parts, most of the CCAF fuel must be shipped in from Soviet Russia itself or other Bloc countries.

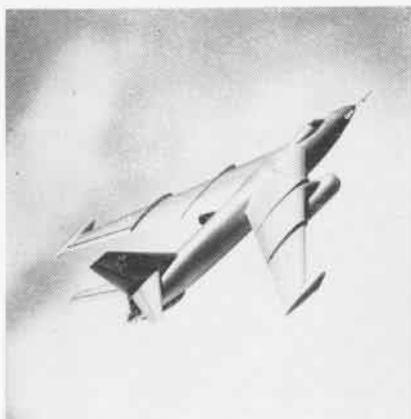
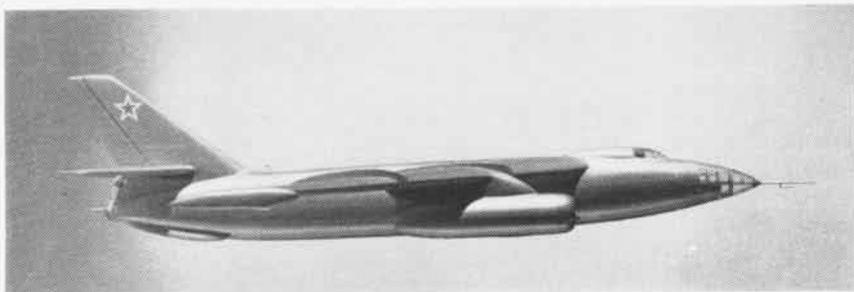
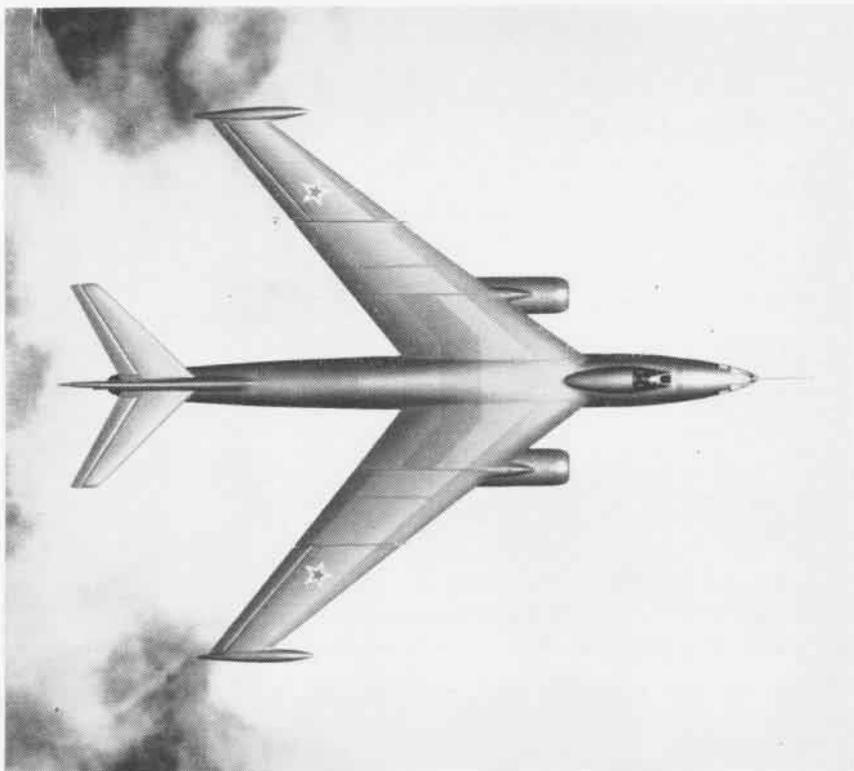
Late developments in the airborne troop field show new capability for CCAF and ground forces. This force is equipped with Soviet *Hound* helicopters performing the role of airborne support, using USSR techniques.

Increased coordination between the air and the ground forces is a further indication of the continuously growing all-round potential of the Chinese Communist air force.



SOLDIERS UNLOAD CANNON FROM CLAM-SHELL DOORS OF A HOUND

USSR BLOWLAMP



Blowlamp is the sweptwing, twin-jet, light bomber in the same class as the Beagle. Comparable to the A3D Skywarrior, the Blowlamp should be capable of Mach 1 plus performance in a shallow dive. The wing is shoulder-mounted and sharply swept with 'outrigger' type landing gear pods on the tips. The vertical tail is markedly raked fore and aft and squared off on top. Engine nacelles project forward of the leading edge.

IN FOREIGN SKIES



A DE HAVILLAND Firestreak guided weapon is fired from a Sabre fighter flying at a height of 40,000 feet over the Woomera range, Australia. Minutes later, the weapon knocked out target.

Canadian Carquals Prove Eventful

The USS *Wasp* initiated her new mirror landing system in regal fashion. Ten pilots of the Royal Canadian Navy were the first to use it operationally during carrier qualifications off the coast of New England.

The Canadian officers flew American-designed, Canadian built C52F twin-engined aircraft. They are members of VS-881 aboard HMCS *Shearwater* at Dartmouth, Nova Scotia.

During the course of the qualifications one of the pilots, Lt. Peter Lavigne, RCN, made the 33,000th arrested landing on the USS *Wasp* since she was recommissioned in 1951.

Missiles at Farnborough

For the Farnborough Show of 1957 being held this month, security restrictions have been lifted for the first time sufficiently to enable the industry to show a sizeable amount of its work in the missile field.

Among those being shown are the Fairey *Fireflash*, powered by two solid-fuel rocket motors and already in service with the RAF as an air-to-air weapon; the deHavilland *Firestreak*, standard equipment on the *P.1*, *Javelin* and *Sea Vixen*; Armstrong-Whitworth's *Seaslug*, ordered by the Royal Navy as a standard anti-aircraft weapon; and the Bristol *Bloodhound*, a ground-to-air weapon ordered by the RAF.

Vickers-Armstrongs will be showing an air-to-air missile, the *Red Dean*. It is reported to be suitable for installation in all-weather fighters.

Helicopters for Brazil

Brazil's navy soon will get three 47J helicopters (Navy designation, HUL-1's) from the Bell Helicopter Corporation.

The U.S. Navy has procured the helicopters for the South American country under provisions of the Mutual Defense Assistance Pact. Three Brazilian naval officers have been trained at the Bell plant at Fort Worth.

Six enlisted men have gone through

the factory mechanics course. Later the helicopters will be disassembled and crated for shipment to Brazil.

Vertol Copters for Sweden

The Swedish Navy has purchased four Vertol helicopters, Model 44. According to a Stockholm release, the order for four 22-place helicopters will later be increased.

The release stated that the helicopters were chosen for "good stability in hovering and in towing missions, good instrument flight capabilities and mission endurance."

The four helicopters will form part of the Swedish Navy's first operational squadron consisting of eight medium, three small and one or two special helicopters. Present plans call for the formation of several such squadrons.

More S2F's for Japanese

Three more S2F-1 antisubmarine aircraft arrived at the Yokosuka Port and were delivered to the Maritime Self-Defense Force this past summer.

Already seven S2F-1's have been delivered to the small Japanese Navy, and this brings up the total of its S2F-1's to ten. The second phase of program will take place in January 1958 with the delivery of 20 more S2F-1's.



A SACKFUL OF GOOD HEALTH was distributed to 78 needy Japanese orphans by Capt. R. B. Phillips, senior medical officer, NAS Iwakuni, and men of FASRon-11, who unofficially adopted the orphans last year. In addition to the two years supply of vitamins, donated by ten American vitamin manufacturers, FASRon-11 has collected clothing and toys for the youngsters, and has contributed labor, food, and money in partial support of the orphanage and its occupants.

Halved Hose is Suggested Would Save Fueling Wear and Tear

Under the Navy Incentives Awards program at NAS MIRAMAR, pipefitters Samuel Clayton and Joseph Sabatino have advanced an idea they think will save money in refueling. Their suggestion: Cut the standard 50-foot section of two-and-a-half-inch hose in half, then install new or used couplings where the hose was cut, to refuel planes from the hi-speed fuelers.

Clayton and Sabatino feel their idea would provide faster service to planes, afford greater protection of equipment, provide a safer and easier hose to handle, eliminate breakage and waste through dragging unnecessary hose, and save storage space.

BUAER feels the idea has merit for stations servicing only those aircraft which may be refueled with a 25-foot hose, provided extreme care is taken to insure that the hose ground wire is in proper contact with the newly-installed hose couplings.

Cleaning Day for Masks VA-172 Safety System Works Well

Ever heard of a mask cleaning rack? No ready room should be without one according to the VA-172 pilots stationed at NAS JACKSONVILLE.

The rack was designed by the squadron safety officer, Ltjg. F. J. Hill and serves a very useful purpose. Made of light canvas, it has a pocket for each pilot's oxygen mask. Upon completion of flight operations every Thursday, all masks are placed in their proper holders. The entire rack is then taken to the paraloft and returned the next morning with the contents cleaned.

There's not much chance of any VA-172 flier using an unsafe mask now. Cdr. Bob J. Rodison, squadron CO, is rightly proud of this accomplishment.



CDR. ROBISON AND LTJG. HILL USE RACK



RADOME MAKES TRACER RECOGNITION EASY

WF-2 Flown Successfully Has NADC Designed AEW Radome

The Navy's newest carrier-based radar plane, the Grumman WF-2 *Tracer*, has been successfully test flown by the Grumman Aircraft Engineering Corporation. The radome above the plane's fuselage houses search and tracking radar engineered by the Naval Air Development Center, Johnsville, Pa.

The WF-2 will replace carrier-based early warning aircraft. The new twin-engine, all weather high wing monoplane has facilities for controlling supersonic jet fighters capable of intercepting and destroying enemy aircraft. It carries a crew of four and packs the latest developments in radar and communications equipment.

Its saucer-shaped radar dome houses the largest airborne carrier-based radar antenna currently in existence.

New Instruction Issued A/C Fire Fighting, Rescue Plan

If you're looking for the very latest official word on fire fighting and rescue procedures, get a copy of BUAER Instruction 11320.13 dated 5 June 1957. It supersedes NAVAER 00-80C-501 of 28 August 1951 and covers aircraft accidents occurring on, or within reasonable distance of, any airfield under Department of the Navy.

There's a lot of new information to be found in this important directive. Section VII presents the pre-accident plan for off-the-field emergencies. Section VIII deals with flight line fire protection and gives the new color specifications for fire extinguishers by type. Revised personnel and equipment requirements are also incorporated.

A kit of transparencies and miniature movables, to be used as visual training aids, has been distributed

in addition to the basic instruction. The aim of the entire effort is an effective training program for maximum readiness in an emergency.

X-14 Ends Initial Tests Takes Off in Horizontal Position

Bell Aircraft Corporation's X-14 VTOL (Vertical-rising) airplane has successfully completed its first tests.

The newest jet-powered VTOL plane is designed to take off vertically in a conventional horizontal position, then shift to forward flight and land vertically, eliminating the need for a runway. It is powered by two British-made Armstrong-Siddeley jet engines.

The experimental Air Force plane differs from "tail sitter" VTOL airplanes in that it can operate without the help of ground handling equipment to position it for take-off.

Thrust diverters, or vanes, located behind the engines direct the jet blast toward the ground to lift the airplane into the air. For forward flight, the pilot re-directs the thrust toward the rear of the plane. Bell's first experimental VTOL's engines were rotated to a vertical position for take-off and returned to the horizontal position for level flight.

Because normal control surfaces such as elevators, rudder and ailerons have no effect during hovering and at slow forward speeds, the X-14 is equipped with compressed air nozzles at its wing tips and tail to provide necessary directional control. The ejected air positions the aircraft during hovering and slow speed forward flight just as the conventional airplane control surfaces provide directional control during normal flight.

The Air Force X-14 has a wing span of 34 feet and is 25 feet long. It measures eight feet tall at the tail.



EXPERIMENTAL PLANE HOVERS LIKE COPTER

STATIONS BACK SAFETY PROGRAM



NAS GLENVIEW CHECK CREW GIVES TIME AND TALENT TO PULL AUTO INSPECTIONS AND HELP MAKE COMMUNITY HIGHWAYS SAFE

"WE LOSE more men and more money in traffic accidents than we do in airplane crashes," says one air station commander. Others say, "Flight will never be safe until the ride to the airport is safe."

So Naval Air Stations Pensacola, Quonset Point, Glenview and Hutchinson have joined the fold of 85 military activities taking part in voluntary community vehicle safety checks. Pensacola leads with 19,000 checks.

The National Vehicle Safety-Check for Communities is comprised of community leaders, local traffic agencies and members of the automotive, tire and maintenance industry. It has White House support. Common goal is to curtail loss of lives in traffic accidents, many of which are caused by autos traveling the nation's highways in less than safe operating condition.

The program was organized to carry out auto inspections on a voluntary basis in the 34 states that do not have compulsory auto inspections. Many law enforcement agencies consider the stickers as valid as if they were issued by a government traffic department.

Here's how a typical program is inaugurated at a Naval air station. The committee calls on the commanding officer and the station department concerned with traffic safety. A program is authorized and inspection teams are formed. Usually one or two military men from the station will work with three or four civilian partners from local tire stores and garages.

An inspection period of five days is planned in advance and publicity is attained through station newspapers, district publications, plan-of-the-day announcements, banners, and placement of pamphlets by volunteer community groups like Scouts or Brownies.

A street inspection station is authorized and marked off by banners. Auto drivers are never forced to go through the inspection line.

At the inspection lane, crews work under a production-line system that allows them to inspect a car every two minutes. A recorder and four checkers inspect glass, steering, rear view mirrors, windshield wipers, horn, lights, turn signals, exhaust system, brakes and tires to ascertain the discrepancies.

If no discrepancies are found, the driver gets a clean bill of health and a window sticker at the traffic lane. If one or more repairs are required, he gets a discrepancy slip showing these items, so he can have them corrected and return for his sticker.

By appealing to civic and community pride and then giving fast, thorough inspections, the committee has gone a long way toward establishing itself in communities across the nation.

If you'd like to start such a campaign on your station, write:

National Vehicle Safety-Checks
316 Ring Building
1200 18th Street, N.W.
Washington 6, D. C.

Public promotion campaigns are launched annually but the committee suggests to drivers that they follow up the annual voluntary inspection by getting their service station attendant to check the same items regularly.

Cost of the program, and its required publicity, is borne by the nation's automotive and tire industry who support safety as a community necessity.



INVENTION SECURES BLADES AGAINST WIND

CWO Makes 'Mango-Picker' Device Helps Secure Copter Rotor

A "mango-picker" has been invented by CWO Pat Summers of Marine Helicopter Squadron One at Quantico. It is a semi-rigid device for securing the tail rotor blades of the HUS helicopter.

The mango-picker is made of tubular steel with four arms which are wrapped with tape. The top arm is hooked behind the root of the top tail rotor blade, and the three Y-shaped arms are engaged on the roots of the other three blades.

The long arm is tied to the pylon fold hand grip of the plane. This fully secures the tail rotor blades against their flapping hinges and prevents their movement in high winds.

3000th Safe Landing Made USS Thetis Bay Copters Stay Busy

USS *Thetis Bay*, the only helicopter assault carrier in the Navy, logged its 3000th accident-free helicopter landing recently. Marine Maj. Charles W. Weitzel, pilot, and 1st Lt. William H. Gossell, copilot of the HUS-type Sikorsky helicopter were congratulated by Capt. James R. Compton, *Thetis Bay's* Commanding Officer.

In addition to the 3000 safe landings, *Thetis Bay's* helicopters have accomplished an estimated 800 to 1000 cargo pickups since recommissioning in 1956. Cargo pickups require a helicopter to hover a few feet above the touchdown position on the flight deck while a basket or sling is attached. Hazards in this attitude are considered greater than on landing.

Mobile Trainer at MCAF Mechanics Learn HR25 Techniques

A new mobile trainer has been set up at MCAF NEW RIVER as an aid to instruction of HR25 helicopter mechanics.

The unit consists of a complete flight control panel, a mock-up hydraulic system, and electrical and heater systems.

Each phase of the copter is taught by one or more instructors during the six-week course. Training covers 160 hours in electrical, 240 hours in mechanical, and 200 hours in metal work.

There are eight Marine instructors and one Sikorsky representative. MSgt. E. O. Hillard is in charge of the unit.



ABOARD USS HORNET (CVA-12), RAdm. T. J. Hedding, Commander TF-77 (center) is briefed by officers of VAH-6 before boarding an AJ-2 aircraft. Briefing officers were LCDr. N. T. Cooper and the pilot, Ens. T. J. Tarté.

VX-2 Issues Certificates Marcks, Stivers Get First Awards

Air Development Squadron Two at NAS CHINCOTEAGUE has started a new squadron practice by giving public recognition for achievement in flight safety. First winners of the award were Glen O. Marcks and William A. Stivers, both ADC/AP, who flew 500 accident-free hours in the squadron.

The certificate, designed and drawn locally by L. Rotter, AN, was the brainchild of Lt. Ray Allen, Safety Officer, and Lt. Bill Fitchko, Aviation Training Officer.

Cdr. C. F. Vossler commands VX-2 which flies eight different types of airplanes: F9F-6D, TV-2, R4D-8, JD-1, SNB, F6F-5D, F6F-5K and the F8F-2D.

Copter and Crewmen Saved Trio Rescued from Sea in Two Hops

A faltering helicopter and all its crewmen were saved during late June ASW exercises off the carrier *Leyte*.

Ltjg. S. R. Snyder of Helicopter Squadron Three was flying his "horse" low over the Atlantic about five miles from the ship and was employing dip sonar when the craft began to vibrate violently. He was unable to gain altitude.

Snyder ordered his copilot, Ltjg. Katzman, chief sonarman A. J. Lord and E. L. West, AD1, to jump from an altitude of 25 feet. By lightening the ailing copter, he was able to gain altitude and get it back to the *Leyte*.

In a rescue helicopter, Lt. J. N. Spring and airman J. G. Bright of Helicopter Squadron Two rescued the three ditched crewmen in two flights.

Pilot Spring and winch operator Bright completed the rescue in less than 20 minutes. Both had just completed helicopter rescue training.

Screech Owl Visits Ship Lends Helping Hand to CVA Photog

When Photographer Richard K. Thomas told portrait subjects to "Watch the Birdie," that's exactly what he meant. He used a live screech owl that wound up tired and hungry

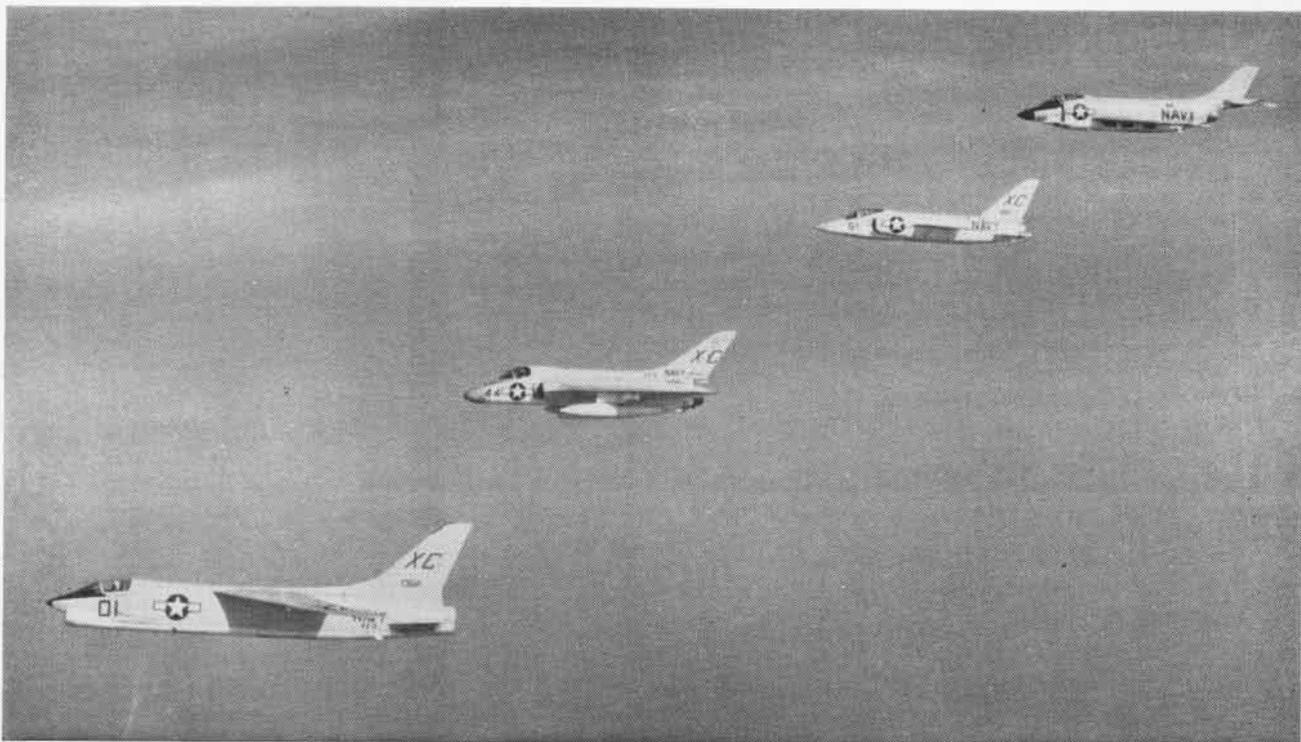


PHOTOG THOMAS: 'NOW WATCH THE BIRDIE'

aboard the carrier *Yorktown* off the coast of Okinawa.

When the fatigued eight-inch-long owl first landed on the carrier, 125 miles away from his favorite tree, crewmembers chased him away. Then Airman Lynn Estrada of VA-195 took mercy on the poor bird.

Capt. Edward E. Colestock granted Estrada permission to keep the bird. But after the owl earned his keep by posing for pictures, he was released.



BEARING THE XC MARKING OF VX-3, THESE JETS ARE NOW UNDERGOING EVALUATION. L. TO R. ARE THE F8U, F4D, F11F, F3H-2N

VX-3 TESTS BEFORE IT APPROVES

THE F11F-1, *Sidewinder*, Mirror Landing System, survival flight gear, FJ-3—you name it—and VX-3, NAS ATLANTIC CITY, has flown it, has tested it, evaluated it, and made recommendations about it. That has been a primary mission assigned Air Development Squadron Three since November 1948 when it was formed by merging VF-1L and VA-1L of Light Carrier Air Group One Lima.

The listing above is a mere sampling of the work conducted by AirDevRon Three in its nine years of existence.

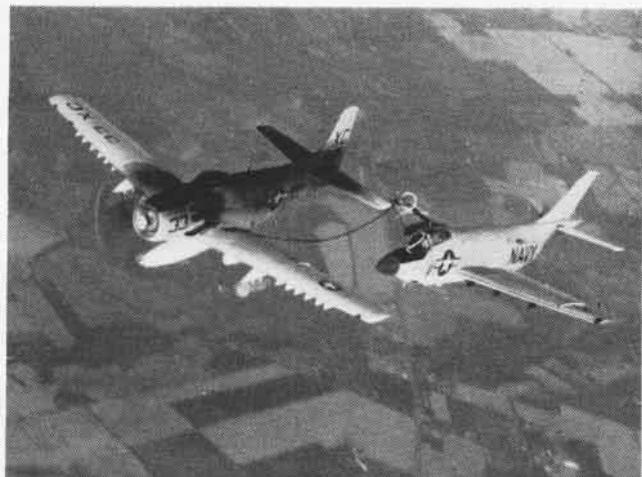
Since the squadron got its first FH-1 *Phantom* and F2H-2 *Banshee* late in 1949, it has flown almost every model of carrier-based aircraft built, both prop and jet.

Temporarily based aboard Atlantic Fleet carriers, detachments of VX-3 have also made operational evaluation of many airborne tactics and techniques, and of much airborne equipment for carrier-based aircraft.

Current squadron projects include: evaluation of F8U, F4D, ZUNI, TACAN, and carrier plane air-to-air refueling.



F9F-8 OF VX-3 MAKES SNATCH PICK-UP OF DART TOW TARGET



VX-3'S AD-6 AND F3H-2N TESTING AIR-TO-AIR REFUELING METHOD

LETTERS

SIRS:

With the advent of Scavey and Shorvey, here is a record that will become impossible to duplicate in the future. RMC Andrew Deshotel left TACRON-21 in July after 11 years on board as leading chief. He came to TACRON-2 when it was commissioned in 1946. (In 1955 TACRON-2 became TACRON-21). He finally put in for shore duty and will report as a Navy Recruiter in Corpus Christi in September.

S. G. JONES, CDR.

Just a word about

TIEFSLIEGEN*

"DON'T"

*It means Flathotting

SIRS:

Page 33 of your December 1956 issue shows a British Hawker Hunter MK 6 with a rocket load of 24 three-inchers.

May I invite your attention to this photo taken early in 1945? It shows a multiple rocket installation of 24 three-inchers on a TBM.

Tests run on this installation proved gratifying, and the installation was very simple, requiring a minor amount of work.

E. F. MARLON, JR.
LCDR, USNR(R)



Official Time on F8U Run Record in August Issue Unofficial

The National Aeronautics Association, U.S. representative of the *Federation Aeronautique Internationale*, has released the official time for the record-breaking flight of the F8U in July. With an average speed of 723,517 mph, the Navy fighter flew coast to coast in three hours, 22 minutes, 50.05 seconds.

The speed and duration of the flight as reported in the August issue of *Naval Aviation News* was unofficial.

Steady Climb to Success From Recruit to Lt. Colonel

The success story of Paul R. Paquin, U. S. Marine, starts with his enlistment in the Corps in 1930. One year later, he was taking part in the action at Managua, Nicaragua, where his interest in aviation was sparked.

In 1932, the Marine Corps needed more pilots, and Pvt. Paquin was one of many chosen to take the entrance examination. In those early days, pilots were chosen on a competitive basis by taking elimination examinations. Paquin and 14 other Marines made it.

The 15 men were sent to Norfolk for elimination flight training. Four of them "washed out" and seven received their gold wings in 1933. One of these was Paquin. Five hundred flight hours later, he was promoted to private first class.

Today, LCol. Paquin is CO of VMR-253, after serving every enlisted and commissioned rate and rank except "buck sergeant." He is a Marine!

A Whale of a Sea Tale

USS Leyte, July 18, 1957—The USS Leyte (CVS-32) collided with a 40-foot sperm whale while enroute to Annapolis. The whale was almost broken in two by the impact. The ship was delayed but undamaged.

*There once was a sperm whale named Matey
Unknown to a carrier called Leyte.*

Till one moonlight night

Their paths crossed just right.

Now Matey won't live to see eighty.

CONTENTS

Story of an Airplane.....	1
Computation Center	11
Convair	12
MAG-36	17
Pilot Health	18
USS Forrestal.....	20
Reserves	24
Fury FIP	26
Iwakuni Orphanage	28
Korean Lad Helped.....	30
Replenishment	31
Chinese Air Force.....	32
Stations' Safety Program	37
VX-3 Test Projects.....	39

● COVER

Prior to a photo mission, the pilot, LCdr. R. A. Clark, signs his name signifying he accepts the aircraft from the plane captain as being ready for flight.

● SUBSCRIPTIONS

Naval Aviation News is now available on subscription for a \$2.25 check or money order (\$1.75 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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NEWS

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SQUADRON INSIGNIA

Employing the ancient boomerang to highlight its retaliatory capability, VA-56 adds electron rings to its insignia to point up its special weapons delivery mission. Gauntleted hands emphasize the protective support role of NAS Barbers Point, while the background of water and Hawaiian rainbow shows its island location. Navy wings superimposed on the field gun of Naval Ordnance and the machine gun of aviation ordnance expresses the aviation support mission of NAF Dahlgren for the Naval Proving Ground. VF-931 based aboard NAS Willow Grove mounts a legendary Griffon atop St. George's cross to show speed, strength and righteousness.



VA-56



NAS Barber's Point



NAF Dahlgren



VF-931

NAVAL AVIATION

NEWS



HERE'S A STAIRWAY TO A BRIGHTER FUTURE. This aerial ladder of F4D Skyraiders in flight off the California coast symbolizes the career potential available to young men who can qualify as Naval Aviation Cadets. Whether you choose to fly supersonic jets, helicopters or the Navy's long range multi-engine aircraft, the world's finest training will insure your future as a skilled specialist with wings. Opportunities are unlimited. Visit the nearest Naval Air Station or Navy Recruiting office and check the advantages of Naval Aviation. Do it today! Choose a career in a proud profession. Face your future as a Naval Aviator.