

NAVAL AVIATION

NEWS



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A Very Merry Christmas To All

Editors and staff of Naval Aviation News wish to express their appreciation at this happy season for the many interesting and valuable communications sent in by Naval Aviation squadrons, ships and stations. Thank you for newspapers, news letters, official releases, special articles and photographs. Thank you for sharing the news with Naval Aviation News in 1954, enabling thousands of readers to share in your exploits.

We thank, too, the members of the various offices of the Department of Defense, the Department of the Navy, and other offices of the government in Washington. We were given the word on hundreds of items. This is one magazine which would never see print without the assistance of many, many experts.



Special credit goes to Naval Photographic Center personnel who efficiently—and often in answer to our need for instant service—turn out pictures that assure us reader interest, that highest goal of every writer.

Thanks go, also, to the offices of Navy contractors who are a valuable source of accurate data—and beautiful illustrations. And, speaking of illustrations, we pause to thank the inimitable Robert Osborn who still draws for his creation, Grampaw Pettibone. The "oldest living naval aviator" also rates our gratitude for wisdom, wit and wallops.

Our appreciation is not exclusive—we thank everyone whether his news was an article or a filler, and whether his contribution was printed or not. But some contributors deserve special thanks and we put down their names for the record.

Fleet Air Jacksonville, Commander Naval Forces Far East, and Marine Corps Air Stations at Cherry Point and Kaneohe Bay lead the list in the quantity and variety of material sent into NANews.



Naval Aircraft Carriers Antietam, Bennington, Coral Sea, Franklin D. Roosevelt, Kearsarge, Kula Gulf, Lake Champlain, Midway, Mindoro, Oriskany, Point Cruz, Randolph, Siboney, and Yorktown.

Naval Air Stations Akron, Alameda, Anacostia, Atlantic City, Barber's Point, Birmingham, Corpus Christi, Denver, Floyd Bennett, Glencview, Grosse Ile, Hutchinson, Jacksonville, Key West, Lakehurst, Los Alamitos, Moffett

Field, Miramar, Minneapolis, New Orleans, Niagara Falls, Norfolk, Oakland, Oceana, Olathe, Pensacola, Quonset Point, San Diego, Squantum, and Whidbey Island; Naval Stations Kwajalein and Sangley Point; Marine Corps Air Station El Toro; and First Provisional Marine Air Ground Task Force.



Naval Auxiliary Air Stations at Barin Field, Cabaniss Field, Corry Field, El Centro, Fallon, Saufley Field and Whiting Field.

Naval Air Reserve Training Units at Anacostia, Jacksonville, Lakehurst, Memphis, Miami, Norfolk and Santa Ana.

Fighter Squadrons 2, 21, 24, 32, 52, 61, 62, 63, 64, 81, 92, 103, 123, 152 and 193; Composite Squadrons 3, 44, 61, and 62; Patrol Squadrons 9, 16, 22, 23, 26, 40 and 741; FASRons 5, 106 and 110; Transportation Squadrons 5, 6, 8, and 32; Attack Squadron 75; Utility Squadron 6; Airship Squadron 2; Scout Squadron 25; Marine Photo Squadron 3; Marine Air Wings-1 and 2; Marine Air Group-13; and Fleet Air Wing-2.

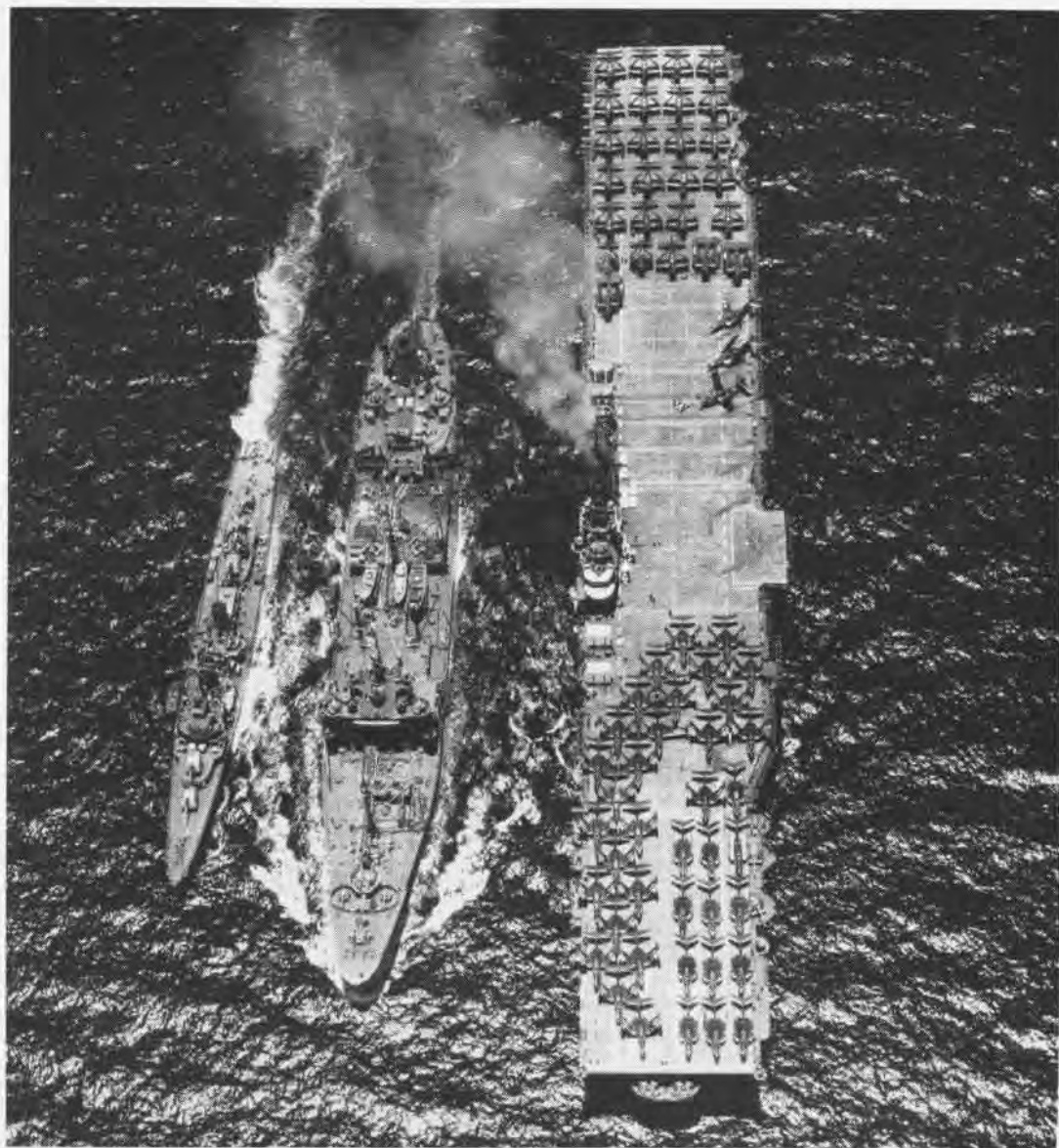
Other great facilities: NATTC Jacksonville, NATTC Memphis; FLogWing Atlantic/Continental, FAWTUlant and Pac; Carrier Divisions Three and Five; ComAirPac, MatsPac, Sixth and Seventh Fleets, and Chief of Naval Forces Philippines.

Research and special activities: Naval Research Laboratory, Office of Naval Research, Naval Advisory Committee for Aeronautics; NATC Patuxent River, NAMTC Point Mugu, NAMC Philadelphia, School of Aviation Medicine, Naval Aviation Supply Depot, Philadelphia; Naval Historical Foundation, and Naval Aviation History.

To each one of these, our appreciation for your contributions in 1954. May 1955 mark new progress for you and may you wish again to share the news with the NEWS.

Naval Aviation News





IT'S A TEN-YEAR-OLD GIANT

IN THE EARLY days of World War II, the Navy was forced to throw everything except the "kitchen sink" at the enemy, and keep its battered aircraft in action as long as possible. But by 1944, the aircraft production battle had been won and it became possible to begin thinking not only how to get there first with the most, but also how to insure that those that got there were the very latest, most modern aircraft in the world.

It was time to regulate, in terms of supply and

demand, spare aircraft and parts so that combat forces would get just exactly what was needed, where and when it was required by military necessity. Almost every member of the Navy family had a part in this vast undertaking. The "family council" had to work and plan in close cooperation.

An informal board was appointed in April 1944 by CNO to provide a sound, well-integrated plan. The plan that developed as a result of this action was called the Integrated Aeronautic Program.



MAINTENANCE PLANNING AND STOCK CONTROL ARE AIDED BY USAGE REPORTS TO ASO



TRAINED MEN KEEP SQUADRONS IN THE AIR

MEMBERS of the board represented DCNO(Air), Chief of BUAE, the Commandant of the Marine Corps, BUSANDA and the Aviation Supply Office. Under the forceful leadership of Adm. Arthur W. Radford—then Rear Admiral and Assistant to DCNO(Air)—the board dug into the problems involved, interviewed witnesses in Washington and at the major commands, and one month later came up with its recommendations. The Board's report, with minor alterations, became the basis for the Integrated Aeronautic Program.

Later in the year, the same board reviewed the Program and recommended necessary changes. Two years later, another board was appointed to revise the Program to meet peacetime needs. VAdm. T. S. Combs—then a Rear Admiral and Assistant Chief, BUAE—was the senior member.

Other meetings of the "family council" have kept the program streamlined to meet changing needs, and the latest permanent committee is the BUAE Committee on IAP Policy, established in January 1954 by the Chief of BUAE, RAdm. Apollo Soucek. Its job is to consider and make recommendations on problem areas or programs which are the major responsibility of BUAE. However, as true now as it was a decade ago, most of the problems cut across organizational lines, and it is necessary to have other members of the family take part in the program planning—ComAirPac, ComAirLant, CNATRA, DCNO(Air), BUSANDA, and ASO. The Assistant Chief of BUAE for Materiel and Services, RAdm. C. E. Ek-

strom, is chairman of the committee.

Here are a few of the problems studied by the IAP Committee: the use of rotatable spares, ways and means of decreasing the time that aircraft are out of service, investigation of adequate means to identify various configurations of aircraft and engines, standard inspection requirements of Navy aircraft, and improved accountability of engines.

Basic principles of the plan formulated ten years ago remain the same today.

- To furnish the most modern, the most efficient kinds of aircraft in adequate numbers to all air activities.
- To maintain such aircraft at peak efficiency wherever assigned.
- To supply such aircraft adequately and promptly with all needed spares and parts.
- To insure that other elements of the naval aviation program (personnel, bases, transportation, etc.) have been given proper consideration in planning the aircraft program.

Few of the pilots who step into cockpits of the latest, newest aircraft assigned their squadrons realize the planning and coordinated effort which preceded that simple act. To meet the first objective, support of the Operating Forces, all aircraft follow a prescribed pattern, or standard service life, from the time they are accepted by the Navy until retired from its inventory.

This policy is applicable to all Navy and Marine Corps aircraft except experimental planes, and any others de-

finied as "non-program" aircraft. The total service life for any given model plane is determined in the light of certain planning factors.

These factors include (1) length of service tour; that is, how many months an aircraft shall remain in an operating unit before it is replaced; (2) number of service tours; that is, how many service tours an aircraft shall serve; (3) length of time in rework; that is, the length of time it takes for an aircraft to be moved to and from the operating command, the time it must await overhaul and the time spent in actual overhaul. Furthermore, since some aircraft will be lost before completing their planned life span, another factor is predicted attrition rates.

After an airplane is accepted by BUAE from the manufacturer, it is delivered to an operating command for its first service tour. A typical fighter aircraft tour is 21 months. Then it is returned to BUAE for rework or "first overhaul." Once the work is completed, the aircraft is returned to an operating command for another service tour. This cycle is repeated for as many tours as have been approved in the planning. The operating months and overhauls are governed by the planning factors established under the IAP.

This standard-service life concept provides a basis for determining support requirements. While some aircraft are in operating units, others are undergoing overhaul. The planes in the rework stage are referred to as support aircraft. By taking into account the planning factors listed above, it is pos-



RYAN FIREBEE PRODUCTION LINE RESULT OF PLANNED ORDERING PRODUCTION AND RESEARCH MODELS OF CUTLASS ON THE RAMP

sible to determine how many aircraft must be in the rework stage to insure the desired operating number. There are also Fleet pools to cover any scheduling discrepancies.

PLANNING factors provide a basis not only for allocating and distributing aircraft, but also for forecasting requirements for overhaul and repair of aircraft, engines, and related materials and equipment. They provide a means of estimating when weary aircraft must be retired because of age and replaced with new ones.

Factors are constantly changed to meet changing conditions. Major points to be considered in re-vamping the aircraft program are (a) military necessity, (b) use to which aircraft are to be put, (c) available maintenance, and (d) the availability of spare parts. Of course, as in all management control plans, other considerations must be taken into account, such as lack of funds or inability of industry to produce new aircraft as rapidly as needed. Responsibility for making changes to these factors is fixed in DCNO(Air), but advice and recommendation is required from BUAER and all major air commands before action is taken.

TO A SQUADRON in combat or on patrol duty, the important thing is not how many airplanes they have, but how many are ready to go at any time. This puts the finger squarely on maintenance. To insure a high percentage of readiness, the Navy has given great emphasis to its program for maintaining its aircraft and engines, and related materials and equipment in topnotch

condition. Under the IAP, it was decided that in the long run, efficiency and economy are served by shipping materials requiring overhaul or repair from remote areas to established O&R shops equipped to process the item rapidly and return it to supply for issue.

At the present time, there are nine class "A" O&R Departments located at NAS ALAMEDA, SAN DIEGO, CORPUS CHRISTI, PENSACOLA, JACKSONVILLE, NORFOLK, LAKEHURST (LTA), QUONSET POINT and at MCAS CHERRY POINT. These establishments also serve as training centers for the men who will ultimately be responsible for maintenance work aboard ships or in far-away places.

The policy of O&R specialization, that of overhauling a given model of aircraft at certain locations has proved both efficient and economical, making it possible to use assembly line methods and techniques. Not only is the assembly line method applied to airframes and engines, it is also applied to those parts known as "Class 265"—parts which have been removed from an airplane or engine, but which can be economically repaired and re-used.

Under the original IAP, the control of workload for the O&R departments was centralized in BUAER. In the past few years, however, it has been found advisable to decentralize some of this responsibility and assign it to BUAER Maintenance Representatives stationed at naval air stations located at San Diego, Pensacola and Norfolk.

ACCCELERATED field service testing of new model aircraft has been given renewed emphasis this year. As formerly, planes are sent to NATC PA-

TUXENT RIVER for tests, but now they are flown around the clock by pilots from Fleet squadrons who are sent there, along with squadron maintenance men for that purpose. By such rugged and complete testing, a new configuration is more readily evaluated, the kind of maintenance the new plane will need is discovered, and a spare parts requirement estimate is established. A very important by-product of this plan is the flight and maintenance experience gained by the squadron personnel who will eventually operate the new plane.

This accelerated testing under squadron operating conditions also gives invaluable data for ordering spares when full production is started on the new model plane. The money-saving value of the IAP is easy to see. For example, 500 planes have reached the end of their pre-determined operating life. Planning based on "margin of safety" and a need for ever-improved combat capabilities dictates that the 500 outmoded planes be scavenged for junk value. Suppose that IAP-controlled ordering of spare parts had not existed when the planes were initially procured. A tremendous stockpile of spares could have accumulated. What a whale of a pile of bucks would go down the drain with those spares! Yes, the ideal situation is a photo finish for the aircraft tours of duty and the supply of spare parts for them.

On the other hand, nothing exasperates a maintenance officer so much as needing a spare part, an aileron, wheel, prop or gear, and not having it at hand—unless it is getting hauled onto the squadron skipper's carpet for not get-



IAP PLANNING RESULTS IN NEW PRODUCTION AS REQUIRED. NOSE JOINS FUSELAGE

ting the plane into the air. Of course, it may be lack of foresight on his part, but again it may be lack of response to frantic AOG dispatches.

Because the responsibility for aviation supply lies partly in BuSANDA, and partly in BuAER, these two bureaus established the Aviation Supply Office as a joint agency in 1941. Under the IAP, ASO was strengthened and its mission clarified.

Among the many problems to be solved by ASO is that of determining requirements—how to be sure to have enough spare parts and the right kinds—without expending any dollars or materials for parts that are not needed. ASO's two principal responsibilities are provisioning and replenishment. Provisioning is the procedure used when new aircraft or new equip-

ment programs are being introduced. It determines what parts, peculiar to the aircraft, will be required during the life of the plane. Provisioning is determined by teams made up of representatives from ASO, BuAER, the O&R Departments at Naval Air Stations, the Fleet (ComAirPac and ComAirLant), and the contractor.

DURING the past year, the provisioning process was carefully studied jointly by ASO, BuSANDA and BuAER with a view to establishing new and improved procedures. So important is this process, if estimates of needs are to be accurate, that a film is being made on provisioning in order to train conferees in proper techniques. NPC project officer on the film, now in the script



SPARE PARTS ARE REQUIRED WORLD-WIDE



AND MAINTENANCE UNDER ALL CONDITIONS

stage, is (so help us), Lt. John Paul Jones.

For parts common to several aircraft, usually called "general aeronautical materials," stock is obtained by periodic replenishment which is based upon past usage projected to meet CNO operating programs and BuAER overhaul schedules. The big problem confronting ASO is to maintain sufficient flexibility to keep pace with changes dictated by naval operations.

In addition to procuring parts, ASO distributes them. In cooperation with BuAER, ASO publishes initial allowances of spare parts, initiates action to establish stock numbers for new items, and issues catalogues of aeronautical material. In terms of control, ASO occupies a major role in providing logistic support to naval aviation.

When Capt. John Paul Jones made his historic retort, "Surrender! We have not yet begun to fight," it is reported that a severely wounded Marine said disgustedly, "On every ship, some darn fool just doesn't get the word!"

Getting the word is still a problem. A management control system succeeds only when everyone has the word. Operating forces have to know the kinds and numbers of aircraft they will have, when to expect to receive new or overhauled planes and when they will have to release certain aircraft for overhaul or retirement from the inventory. Several routine documents are issued for this purpose. Two of the most important are the Gray Book, the *U. S. Naval Aircraft Program* and the Blue Book, *Allowances and Locations of Navy Aircraft*.

The Gray Book shows the allocations of each model of aircraft to each air command (AirLant, AirPac, CNATRA, etc.) during the next year or two, and the total remaining life of the model, as well as the acceptances and transactions between BuAER and the air commands. The Gray Book is loose-leaf, with a sheet for each model, which is revised as necessary.

The Blue Book is issued monthly and shows, for each squadron and unit, the number of aircraft it actually has on hand and its authorized allowance of operating aircraft for the next two or three quarters. Over 95% of the approximately half million different items handled by ASO are procured, distributed and redistributed using data revealed in one of these two books, plus releases on estimated flying hours.



LATE TRAINER, T-28B, IS RESULT OF INTEGRATED PLANNING

NAVAL PILOT TRAINEES NEED THE BEST EQUIPMENT AVAILABLE

THESE two books are almost as good as a crystal ball in the hands of the boys who steer the floating airfields. But what of the boys behind the boys who steer—the fellows who have to compile all that information?

Sure, fool-proof systems of accounting and reporting exist so that the Navy Department can know what is happening in the operating forces—fool-proof, that is, until some chowderhead slips up on making a vital report. Fortunately, this doesn't happen too often.

The aircraft accounting system, a vital tool of the IAP, provides inventory, logistics, and utilization data on all Navy aircraft. It is the foundation of the aircraft program and enables the Navy to provide data needed to justify funds for aviation plans and programs. Most of the information collected by the aircraft accounting system is used daily. Accuracy and completeness of the records and reports are a direct necessity.

The deluge of reports and schedules seems staggering on both the reporting and receiving ends. Industrial cost reports, usage data reports, deployment plans for operating aircraft, and overhaul schedules for aircraft, engines and Class 265 material are some of them. But each has its indispensable niche in the system.

Many hands make light work, however, and no operating command is burdened with the necessity of making superfluous reports, according to a recent survey. Required reports have been streamlined to make their preparation as painless as possible.

Further streamlining is being accomplished at both ends of the reporting



IMPORTANT IAP FUNCTION IS SALVAGE



GUILLOTINE MAKES SPEEDY SCRAP JOB



STACK OF INGOTS MADE FROM COMBAT VETS

chain in the form of machine equipment and electronic computers. DCNO (Air), BUAEF, and ASO have acquired electronic computers and are developing initial IAP applications for them. Three Air Commands (AirLant, Air Pac, and CNAResTra) have established machine-equipped staff offices for aircraft accounting and other IAP planning and controlling functions.

Since the Navy has moved into an era of such major emphasis upon jet aircraft operations, the proper balancing influence of the IAP is even more important. The F2H *Banshee*, and the F9F *Panther* have been headlining Fleet fighter operations for some time. Now the swept-wing jet squadrons are coming in, with F9F *Cougar* and F7 *Fury*, F7U *Catlass* and F3H *Demon* aircraft. Soon the use of jet types for attack missions is to be expected.

Other significant changes have been taking place in the Navy establishments of operating aircraft, such as the new s2F for the anti-submarine hunter/killer mission, and the new early warning picket airplane, WV-2 to protect the Fleets and shore bases from attack.

YES, the plan inaugurated ten years ago, for providing balanced support for the Navy's aeronautical organization is still going strong. Circumstances are different, of course. The problem then was to support an all-out war effort against a definite enemy. Now it is a question of providing aviation forces in time of peace strong enough to defeat an aggressor. But the end aim is the same—to make the best use of everything we have to achieve the best possible state of readiness.



GRAMPAW PETTIBONE

Accidents Will Happen . . . ?

On his first approach for carrier qualifications, an F9F-6 pilot received a wave-off for overshooting the groove. The next plane landed and was taxied forward to the number one elevator to be struck below. The first pilot made another approach and was given a "high", which he answered.

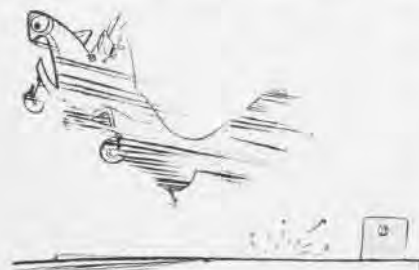
As he approached the "cut" position, he dropped the nose of the aircraft and started to settle rapidly. The LSO only had time to give him a frantic "low", which the pilot answered by pulling the nose of the aircraft up. The wheels barely cleared the deck, but the tail hook struck the ramp and broke off.

The aircraft continued up the deck in a very nose-high attitude. It started a gradual climb and, as it passed the



barriers, the main gear ripped out the nylon straps. The nose went over the top strap of the barricade, which severed the nose wheel. The aircraft touched down 60 feet forward of the barricade on the nose wheel strut and right wing tip and continued forward striking the F9F-6 parked on the elevator.

The first aircraft broke in two at the cockpit section and the pilot, still



strapped to the seat, was thrown out on deck fatally injured. Both aircraft, burning fiercely, slid forward to the bow of the ship. The pilot of the parked plane made a fast exit, when the planes stopped at the bow, and just in time. The two aircraft slid into a watery grave when the ship went into a high speed turn to clear the smoke for the firefighters.



Grampaw Pettibone Says:

Great Jumpin' Jehosaphat! What a waste of life and aircraft! The accident board assessed the primary cause of this accident as pilot error in that the pilot dropped his nose in the groove causing the plane to get low enough to strike the hook



on the ramp. The second error was his failure to get the nose wheel on the deck and hold it there so that he could have engaged the barricade properly.

Well now, that's a couple of mighty big assessments to make, especially when this poor lad isn't around to defend himself. Let's take a look at the record. He had a total of 90 hours, including nine FCLP periods, in the F9F-6. He had made 70 previous carrier landings in the Corsair. I may be getting old fashioned, but that seems to be a little on the short side for

the average pilot in a high-performance aircraft like a Cougar.

Apparently, he thought he could make it. His skipper and LSO must have thought he could make it, too, or he never would have been out there in the first place. But somebody was wrong as you'll see if you analyze the second error. He either got scared when he hit the ramp and froze up, or he was never told what to do in case he missed a wire.

If he froze up, it was because he didn't know what to do. If he didn't know what to do, it was because somebody assumed he knew and didn't take the trouble to make sure.

This reminds me of a fella who was standing on a corner with his four-year-old son. An eye catcher of a blonde in a red sweater undulated by, and the little boy gave her a passing glance. He was promptly whacked on the side of the head by his father. To the tearful query, "What did I do, Pop?", his old man said, "Your mother says you take after me, and I know what you were thinking." The moral being that you can get into all kinds of trouble



Facts of Life

when others assume you know something that you don't know.

There is a way to beat this game. It's a sure bet you won't find one pilot who will admit he's not ready when it comes time to go aboard. Maybe he thinks he is as ready as he'll ever get, but rather than giving him an inferiority complex by pointing out his deficiencies, set the whole outfit down in the ready room and start from scratch.

Drill into them all the whys and wherefores of carrier landings. On the surface it will be old stuff to all of them, but you can rest assured a few will welcome the chance to talk it out.

The old saying "accidents will happen" is as outdated as knee-length bathing suits. Let's go beyond pilot error and find the real cause. Maybe some of the contributing factors will prevent your future accidents.

The Gun Wasn't Loaded?

Or "How to Start the New Year Off with a Bang!" It was Thursday, December thirty-first. The hour was 0910. I was in the ready room loafing. I'm a pilot.

A call had come in from the hangar. 405 was ready for a pilot's check of the ejection seat. The squadron duty officer approached me. I know he was the squadron duty officer because he pretended he was busy. Besides, he wore a brassard with SDO on it. His name is "Tex". He's from Arkansas.

He said, "I've got a job for you. Go down to the hangar and check the ejection seat in 405. You'll get a kick out of it." That boy has got to go. He reads palms. I said, "You mean inspect the eject?" He said, "Yeah, and make certain of the curtain." Man, that guy gets corny sometimes. They shoulda called him Missouri.

He said, "There are two mechs down there waiting for you. Tell 'em Smiley sent you." With that he did an about-face and stalked back to his cage. They oughta put guys like that away. The nerve of some people! Tear you away from your reveries of a girl whose New Year's resolution was to say yes to everything and make you go sit on a cold parachute. That's life.

I approached the hangar from the north. That's the side the ready room is on. Everything on the outside was still. It was still raining, and the planes were still tied down.

Inside it was different. Nothing was tied down. Airplanes, cowling, ejection seats all over the place. Looked like a hurricane had hit. There was 405, the tail section separated from the fuselage and parked about 20 feet behind it. It looked like a trap.

I eased around 407, slipped under the wing of 409 and found myself on the port side of 405. I woulda tackled it from the starboard side, but I'm a pilot. I follow the line of least resistance. Besides, I didn't have a ladder.

Up behind the cockpit straddling the fuselage was a sinister looking character. He had so much hair on his face you couldn't see his nose. Whoops! It was the back of his head. I felt myself being pushed into the cockpit.

Something fishy was going on. I don't mind being helped, but I can't stand being pushed. I pulled my head out from under the seat. I sat on it. The seat. I asked if the charge had



*Is this trip
Necessary?*

been removed. They both nodded. I knew something was up and I was right. It was the pre-ejection lever. I pushed it down. Nothing happened.

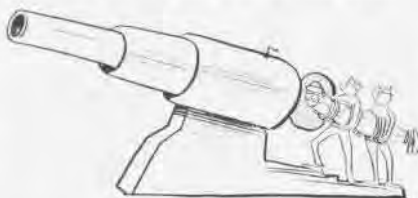
I pushed it down twice more. The knee guards came up and the seat bottomed. I grabbed the rings with both hands and jerked. It was curtains. Like taking a slug of Mountain Dew.

I was blasted. There I was on my back 60 feet in the air. I was still in the seat and riding high. I look down. Airplanes, cowling and ejection seats all over the place. Sure looked like a hurricane had hit. I looked up. There was a raider about three feet away. I reached for it and missed. This kills me. I did a split-S. There was the tail section of an airplane directly below. I think it was 405, but the number was blurred as I went through it. My memory failed me. I woke up in the hospital. This is the hospital, and I'm telling my story. I'm all broken up about it. Take my advice. If you don't want to get high, remove the charge. It's dynamite! Happy New Year!



Grampaw Pettibone Says:

Dum, de dum dum! Shades of Caesar's Ghost! This lad was indoctrinated into the "Oh, My Behind" Club the hard way. You might almost say that he came out at the tail end of that deal.



Two days before, the seat had been removed from 405 outside the hangar. The seat was taken into the hangar and placed on the deck. The next day 405 and two other aircraft were moved into the hangar, and the seats were removed from the other two. The seat supposedly belonging to 405 was then de-armed. One of the other aircraft had the seat replaced the same day, but it later developed that it was the seat to 405. Through lack of markings on the seats, someone got his wires crossed and put an armed one in 405. My aching back!

What gets me is that after a poor unsuspecting pilot gets the heave-ho a foot short of the hangar roof, the squadron gets busy and initiates a fool-proof system for preventing a recurrence. Written directives are to be issued on safety procedures to be followed by all personnel. All ejection seats are to be marked with the same markings of the aircraft they belong in.

Charges will be removed if the seat is to be out longer than the working day. Seats will be tagged to indicate whether the charge is or is not installed. Pilots will personally check to see that the charge is removed prior to testing the seat. You bet they will! It's just too gosh-durned bad they didn't have enough foresight to do all this *before* the accident.

Somebody in each outfit has to think "accident prevention" all the time. It's a lead-pipe cinch that the second assistant to the Savings Bond Officer isn't the man for the job. He's too busy raising pennies to buy replacement aircraft. For my money, an Aviation Safety Officer on the same division level as the Operations Officer would pay the biggest dividends. He'd be the Skipper's right hand man and be in a position to put some teeth in that old saw, "Safety is a command responsibility".

With a safety program that anticipates trouble and acts immediately, there would be fewer pilots sacked out in some hospital waiting for broken bones to mend. There's an old saying that anticipation is greater than realization, but not in this flying racket. Maybe that is why there is so little of it.

Like the farmer said

When the question was posed,

"That's easy, son,

I keeps the barn door closed,

"It's them as waits

Until the horses is stole,

Who finds themselves

A mite short on Fowl."

MEMO FROM GRAMP:

A hot landing is like trying to beat a train to an intersection. If you are able to wonder what would have happened if you didn't make it, you must have made it—but it was mighty close.

KHOURIBGA BASE, THE PENSACOLA OF FRANCE



LOCAL ECONOMY OF THE KHOURIBGA AREA DEPENDS ON CAMEL CONTRAST OF ANCIENT AND MODERN TRANSPORT SEEN ON FIELD

ON THE Moroccan plain of North Africa, *Base Aeronavale Khouribga* is being built. It is designed to be the primary training center for French naval aviation.

Weather and terrain combine to make it an excellent selection. Unlike other coastal bases in North Africa, fog is unknown at Khouribga. The field was on instruments only seven times last year. Except for "chergui" weather—when winds blow from the east—the summer climate is quite agreeable. Daytime temperatures in the mid-80's alternate with brisk, cool nights. In winter, the night temperatures frequently go down to freezing, but the days are sunny, and the mercury climbs into the 50's.

The prevailing winds are from the north-northeast. About five times a summer however, the winds are from the east—the "chergui". According to local legend, the devil is stoking his fires anew, and the "chergui" is the draft from his bellows.

The belief is not illogical. The temperature climbs to a scorching 110°. Night brings no relief; it is just as hot as day. The "chergui" lasts for four or five days. Regardless of temperature, however, the humidity stays at a comfortable 20 to 30%.

Khouribga is located in about the geographical center of French Morocco, 100 miles south-southwest of Port Lyautey. It is on almost the same parallel of latitude as Charleston, S. C., but resembles the terrain of eastern New

Mexico. The red-clay soil is based on limestone at about 30 inches—a perfect combination for cheap runway construction.

To the macadam runway, built in 1943, the French Navy has this year added more than two miles of concrete taxiways, hardstands and parking areas. Another 2,000 feet of runway will be added next year, and two outlying fields are projected for 1955 and 1956.

Now the primary training is given in the *Stampe*, a Belgium biplane resembling the *s2s* and basic training follows in the SNJ's furnished by the U. S. Navy through the Mutual Defense Assistance Program. Instrument and navigation training are given in a Messerschmidt-designed four-place trainer. However, the latter planes are being phased out of the training program. Next to go will be the *Stampe* with all primary and basic training given in the SNJ. Advanced fighter training will be given in *Corsairs*, and probably in a *Fouga Magister* two-place jet trainer.



AMERICAN AND FRENCH MILITARY CONFER

Until September 1953, French naval aviators were trained either by the U. S. Navy in the United States, or by the French Air Force at Meknes, also in French Morocco. The transfer to Khouribga of 26 SNJ's as a part of the MDA Program enabled the French Navy to begin the training of its own pilots.

Eighty pilot-candidates commenced training at Khouribga in September 1953. An additional 20 were trained during the same period in the United States. Ultimately, as base facilities are completed, it is expected that all primary and basic training and advanced fighter training will be conducted here.

Military men shown in picture are, left to right: Capt. R. S. Camera, USN, Adm. Ruyssen, French Navy Bureau of Aeronautics, MGen. T. E. de Shazo, USA, head of MAAG FRANCE, and Capt. Amman, of the French Navy.

Two new 192-man barracks were ready for occupancy September 1, 1954 with four more projected for the next two years. Costing some \$343,000 each, the cut-limestone walls are built of the stone taken from their own basements.

A point of interest—the galley has seven storage vats for wine, each of 1,000-gallon capacity. Seven thousand gallons of wine is approximately a five-months supply, ration-wise, but actually will last longer than that because the French sailor drinks considerably less wine now than before the war. Consumption of milk has increased.

Tradition dies hard. For the French, dinner at noon is the big meal of the day, complete with wine, and usually followed by a nap. In the interest of alertness for afternoon classes, the menu was revised to provide a substantial breakfast and evening meal, but only a snack for lunch.

Sick call went up. Veteran CPO's complained of "stomach cramps" and other maladies. One, however, had the most convincing argument for the restoration of the wine ration. "A man can't live in this country without liquid," he said, "and I haven't drunk any water since I was six years old."

Any new base has its problems and disadvantages. Khouribga is no exception. The number one quest is for an adequate water supply. A shallow well supplying 750 gallons per hour meets the urgent needs, and a deep well is being drilled, to 1,000 feet.

If water does not gush forth, the alternative is to build a dam. One can safely conclude, however, that there will be no seaplane training here in the near future. Pensacola, Fla. can rest easy on that score.

The *Office Cherifien des Phosphates* is the reason for Khouribga existing. OCP built the town, and until the establishment of the BAN (*Base Aeronavale*), was the only employer of any consequence in the entire area.

CERTAINLY one of the greatest problems, however, is that of recreational facilities. The new commandant of the BAN, Capitaine de Frigate (Commander) Huet insists that the apologists are so bound by tradition that they cannot recognize recreational facilities. "French sailors," he says "will always find something to do. I have been here now for three days, and already I have approved three applications of base personnel for permission to marry."

The fact remains, however, that except for the rather exclusive OCP club, there are no conventional recreational facilities. But such facilities are perhaps less important than if Khouribga were an operational base. Students are students—no matter whose Navy. A swimming pool, recreation building, volleyball courts are projected for the next two years, but for the present there is nothing except the anticipation of being able to say to the "aspirant" of 1960, "You think you got it rough? Why when I was a cadet here in 1954. . . ."



POWER PACKAGES FOR NEPTUNES

THE AWARDING of a new modification contract to the Lockheed Aircraft Corporation will give the Navy's P2V-5's and -6's new J-34 pods to augment the regular turbo-compound R3350-30W P&W engines.

All models of the P2V-5 and P2V-6 twin-engine *Neptunes* in service within the continental limits will be returned to Lockheed's Burbank plant for the installation of the jet engine. Overseas units will make their own installation of the 3,400-lb. thrust jet engines.

Suspended from the *Neptune's* wings, the jet pods weigh 1,600 pounds each and are held in place by three bolts. Present speed of the -5 and -6 class will be boosted to a considerable extent. The jets will also provide extra power for the aircraft over targets and during take-off on short airfields when the aircraft is heavily loaded.

Packing the latest in radar, special electronic search gear, bombs and depth charges, the *Neptune* serves as the Navy's number one hunter/killer submarine plane. Some of the later models are also serving as patrol craft and minelayers.

An early version of the *Neptune*, the *Truculent Turtle* holds the world's distance record for flying non-stop without refueling in 1946 from Australia to Cincinnati, Ohio, a distance of 11,235 miles.

All P2V-5 and P2V-6 *Neptunes* will resemble the latest P2V-7 (upper photo) when they come off conversion lines within the next three years.



Mid-Air Disaster Averted Crewman Makes Repairs in Flight

A *Neptune* patrol bomber and its crew were saved from disaster recently when a Navy airman volunteered to chop a hole in the plane's nose and crawl through it to release a jammed nose wheel.

While Harry Baker, AD, labored with the faulty nose wheel, fire engines and ambulances stood by for a crash at the airport at Copenhagen.

The *Neptune* was flown by VP-16 men from their temporary base in Iceland. Thirteen were aboard. As the P2V circled the airport, the nose landing wheel jammed in the up position.

Just as the plane was ready to make a belly landing, Lt. Henry Hiser discovered the main landing wheels were stuck in the down position. Baker went into action immediately to get the nose wheel down.

Using an axe he smashed open the fuselage and got to work on the wheel gear, his head and shoulders outside the craft. He got the wheel down, and the plane landed safely with only enough fuel for a few more minutes of flight.

R7V-2 Tested in Desert Transport Speed Upped by 100 mph

Prototype of the Navy's new R7V-2 is being tested at the USAF's new test center in the Mojave Desert.

Designed as a military personnel-cargo-evacuation version of the famous *Super Constellation*, the new plane flies, according to Lockheed, 100 mph faster than any other prop type transport in operation today.

Powered by four 5,500 hp P&W turboprop engines, the R7V-2's power plants generate 22,200 hp at take-off and can fly a 16-ton load across country non-stop in less than six hours.

With a top speed of 330 mph, the plane, whose floor is all magnesium, has 5,400 cubic feet of space for the stowage of 35,000 pounds of cargo. With a maximum take-off weight of 150,000 pounds, it was designed to carry 106 passengers in its overland arrangement and 97 when used for over-water flights.

With cabin pressurization furnished by bleeding high pressure air from the engines, the plane has a cruising altitude of 25,000 feet and a service ceiling of 35,800 feet. It can carry 73 litters.



COMPLYING with SecNav Instruction that Naval officers, commissioned before 1 July 1950, execute loyalty forms, Adm. K. B. Carney, CNO, signs as RADM, E. W. Grenfell looks on.



WW II photograph of the USS *Thetis Bay* shows her in role of aircraft transport with PBV's. Scheduled for a 14-month conversion at San Francisco Naval Shipyard, she will become Marine helicopter assault vessel in 1956.

VMA-324 Encircles Globe World Cruise is a Marine 'First'

VMA-324 claims that theirs is the only Marine Corps unit to make a world cruise. They even went to the trouble of having this verified by the Marine Commandant.

Embarked in the USS *Saipan*, the squadron departed from MCAS Miami in Sept. '53, sailing through the Panama Canal to Yokosuka, via San Diego and Pearl Harbor.

Training operations were conducted during the entire 10-month cruise. Temporarily attached to the Far East Command, the ship and squadron engaged in training and patrol flights in the Yellow Sea and Korean waters. Spring maneuvers on Iwo Jima and Okinawa found the squadron providing close air support for the Third Marine Division.

Homeward bound, the carrier's ports of call read like a Baedeker—Singapore, Aden, Naples, Nice, Barcelona, and finally, Miami.

Royal Navy Aids AF Man Iron Lung Flown to Polio Victim

The USNS *General Maurice Rose* was enroute from New York to Bremerhaven, Germany. Among the passengers were Sgt. and Mrs. D. L. Oliver and their son, David, aged four. David was sick and his symptoms indicated polio. The ship requested assistance from MSTs Headquarters in London.

RADM. C. F. Chillingworth, Com-MSTS, Eastern Atlantic and Mediterranean area, ordered the *General Rose* to change course to rendezvous with a helicopter, which had an iron lung aboard.

Piloted by LCdr. G. C. J. Knight, RN, with Senior Commissioned Observer P. A. Rowsell, RN, aboard, the helicopter from the Royal Naval Air Station at Gosport rendezvoused with the transport in stormy seas. Visibility was only 300 feet, but with skillful maneuvering, Knight brought the helicopter over the ship. Rowsell was deposited on deck after a hazardous descent. The iron lung was lowered in two sections.

David was immediately placed in the iron lung and transferred to a tender at the entrance of Southampton Harbor. He was rushed to the Southampton Lung Hospital where his condition has since been reported as improved.

MODERN FLYING HORSE SERVES THE MARINES



A RECENT addition to Marine Aviation is the R4Q which carries 44 fully equipped Marines.

THE NAME "Pegasus" usually refers to the flying horse of Greek mythology, but it is no myth to the Fairchild Engine and Airplane Corporation, and it isn't Greek to the Marines. The manufacturer has adopted the flying horse emblem as the symbol of its R4Q "Flying Boxcar."

Pegasus was born, according to the Greek myth, the day Perseus, son of Zeus, slew Medusa. Medusa's blood mixed with the dirt of Mount Parnassus, and a miracle occurred—the instantaneous creation of the flying horse.

Another part of the legend is that a Greek warrior Bellerophon later mounted Pegasus to strike a death blow to a fire-breathing dragon, thus becoming the first man to use air power to destroy an enemy.

The modern Pegasus, Fairchild's R4Q, is being used by the Marines as an aerial workhorse for combat troops.

In combat areas, Marine R4Q's normally take up the load where the regularly scheduled military air transportation ends. The huge clam-shell doors in the rear simplify loading and unloading. Loads may include some of the thousands of items used by troops, from badly-needed repair parts for tanks and ordnance up to howitzers, ambulances, and the fast movement of troops themselves.

In relatively quiet surroundings here at home, the big R4Q's also have an important job to do. A recent demonstration of the plane's capabilities was car-



THE TWIN tail booms of the R4Q "Workhorse" make recognition relatively simple. This airplane is used by Marine aviation squadrons to provide air support to Marine Corps ground forces.

ried out by MAG-35 of MAW-2 when they executed "Operation Reserve Airlift." Commanded by Col. A. H. Weinberger, the group carried 4,868 passengers and lifted 102 tons of equipment.

Teams flying from MAG-35 were in the air for 4,592 hours flying a total of 919,040 miles to transport Marine Reservists from their home towns to reserve training areas. Keeping the aircraft in a smoothly operating condition was the responsibility of Headquarters and Maintenance Squadron 35 under the command of LCol. James Booth.

Originating at points east of the Mississippi for flights to El Toro, Calif., and west of the Mississippi for flights to Cherry Point, the reserve training exercises culminated in the return of Reservists to their home stations.

MAG-45 from MCAS MIAMI was operating on temporary duty in the airlift because of its scope and size.

The total mileage flown by the R4Q workhorses during the operation equaled two round trips to the moon, two trips around the world, plus the distance from Cherry Point to Hagerstown, Md. where the R4Q's are built.

The routine assignments for the huge planes are usually in conjunction with maneuvers which involve ground troops. TRAEX-1-55 was a two-month summer maneuver in Puerto Rico climaxed by a full-scale sea-air landing exercise on Vieques Island. The R4Q's transported troops back and forth to maneuver sec-

tors and took part in simulated air drops similar to those carried out under combat conditions in Korea.

The workhorses have also served the Navy. Recently the Air National Guard released a number of outmoded F-84's which the Navy wanted as drones for sharpening the eyes of its Fleet gunners. Most of the planes were in no condition to fly, so crews were trained to dismantle the F-84, pack and load it into an R4Q and return it to the O&R Department to be put into flyable condition. The dismantling, packing and stowing, and return to the air station took but one day.

WITH THIS routine job completed, the workhorses were called on again to assist the Navy. This time, flights took two crews to Greenland where a Navy ice-breaker was frozen fast in ice floes. A passage through thin ice had to be plotted and helicopters were the answer. None was available, so the workhorses picked up two from the Bell plant near South Weymouth, Mass. The R4Q's swallowed them, rotors and all, and flew them to Thule, Greenland, where copters and crews were unloaded to proceed to the site of the ice-breaker.

This flight, to within 800 miles of the North Pole, marked another first for the R4Q. It was the first time the modern Pegasus had flown that far north. With the Marines, Pegasus is merely a "horse of a different color"—a horse that has been modernized.



TAGGED for security and hatted for fun, happy Philadelphia kids take a breather with their "big brothers" during NASD Xmas party.



MEETING Santa Claus himself was very, very serious business to these twelve of the 50 orphans at the Christmas party at Agana, Guam.

'DEAR MR. NAVY, THANK YOU VERY MUCH'

December 30, 1953

DEAR MR. NAVY,

Thank you for the presents that you send. It was fun to see the box come down from the airplane. We all thank you it is fun to get presents I wish I was in the navy and I wish I could have a navy suit. I hop you like my letter. God bless you answer soon.

*from Moses Alexanderoff
Ouzinkie, Alaska*

From Alaska to Pensacola, from Guam to Philadelphia, children like Moses Alexanderoff, made happy at Christmas by Navy generosity, said "Thank you" to men and women in Navy blue.

It was a poor salmon season in Alaska last year. In the little fishing villages around the island of Kodiak, whose very reason for existence was the fish canneries, there was real need. Christmas would be bare indeed. With no money for clothing and food, how could there be any for candy and toys?

"Mr. Navy," in this case, Capt. W. K. Rhodes, Commanding Officer of the Navy's northernmost naval station at Kodiak, moved to aid Santa Claus. Boxes of gifts and Christmas toys, augmented by bundles of warm clothing donated by Navy families, were packed for delivery in Santa's *Albatross*.

Villages on this almost roadless island

are reached by boat or by amphibians. At almost every one of the eight villages to be visited, high wind and fog ruled out a water landing, and Operation *Santa's Aid* became Operation *Christmas Drop*.

At Ouzinkie, on Christmas Eve, the UF made a low pass over the school house. A second pass accomplished the drop, while a third one showed a perfect hit in the school yard, with the children swarming around the chute and the big bundle. A little effort, a little sacrifice of time and money, had insured a happy Christmas for more than 100 children.

Due south some 2,000 miles, in sunny Hawaii, the men of *FASRON-117*, NAS BARBER'S POINT, slipped smoothly into the role of "Father for a Day" when busses brought 60 orphaned children from Honolulu to the squadron's party. Inspection of the squadron gymnasium where gay Christmas music, decorations, and the piles of gifts made eyes shine and hearts dance, was interrupted by the arrival of the VIP airplane—Kris Kringle, no less, had come to join the fun.

Back in the gym, the party went into full swing with old St. Nick distributing presents to each of the children. The gifts were opened and admired, then stowed for future use. The immediate delight was the consumption of the great quantities of candy, cookies and ice cream. The party drew to a

close with a favorite comedy picture.

Something unusual in Yuletide parties was going on over at the VR-21 hangar. Included in the squadron's Christmas gift to 48 Oahu Explorer Scouts was a thrilling three-hour tour in one of the *rod Liftmasters*.

Twice as far away, out beyond the International Date Line, CPO's at NAS AGANA agreed that Christmas is for children. So they feted 50 Guam orphans at a Christmas dinner party of turkey, ham and "the works." True to his reliability in keeping his international scheduled appearances on time, Santa Claus arrived loaded with gifts for the wide-eyed shy little guests.

HALFWAY back around the world, Santa Claus was again on hand to help make Christmas merry for 40 underprivileged children who were the guests of VR-22 at Norfolk, Va. To the delight of the children, he arrived by airplane. They had had a party and a tree, and now here was the jolly old fellow himself with not only toys and candies, but also a complete outfit of clothing for each one. A full-course holiday dinner concluded the event.

North 100 miles or so, NAS PATUXENT was the scene of VR-1's party for 100 children from Washington, D. C. No sooner had the small fry bounced from their buses than the crowded day started with a milk and doughnut treat at the hangar, followed by an hour of

cartoon movies with more fun to come.

A short station tour whetted appetites for the turkey dinner. Still eager, even after such a feast, the youngsters were taken on a tour of the squadron hangar where they saw planes "close enough to touch." A jet and a helicopter shared their fascinated attention with VR-1's *Super Connie* "big enough to hold us all. Why, you can sleep in here!" Then the announcement was made that Santa was landing just outside. One hundred cheering children danced on the apron to greet him as he stepped from his JRB.

Nor did Santa arrive empty-handed. Each child received toys of his choice and articles of warm clothing.

NASD PHILADELPHIA executed "Operation-Santa" for the ninth Christmas. More than 300 underprivileged children are entertained each year at a gala party that begins with a turkey n' trimmings dinner, where "seconds," "thirds," and if desired, "fourths" are served.

At last year's party, the kiddies and their escorts consumed 450 pounds of turkey, 300 pounds of potatoes, 90 pounds of peas, 12 large cans of cranberry sauce, 625 ice cream tarts and 110 quarts of milk.

Out west, Christmas wishes of the little girls at the St. Vincent's Home in Santa Barbara, Calif. were answered to the letter when all 168 of them arrived at NAMTC Pt. Mugu to spend Christ-



SANTA takes off in the station "copter" for a close-up inspection of all Quonset chimneys.

mas Day like real little fairy princesses.

Weeks before the great day, NAMTC personnel had asked for letters-to-Santa from each of the children in the home. The \$1,500 Pt. Mugu personnel had given was used to purchase the gifts specifically asked for, and an article of useful clothing for each child. In addition to the individual items, there were 10 wagons, 10 scooters, 13 tricycles, 20 pairs of roller skates, four radios, and a record player for use of all the children at the home.

The party began at 1030 when the little girls arrived and met their individual escorts who took care of them all day. A line-up to meet Santa and

to receive a bag of candy from the Old Gentleman set the tone of the day that was to hold one wonderful surprise after another.

After eating all of the large and delicious Christmas dinner, the group was ready to sit for 70 minutes of their favorite comedy and animated cartoon. Then with excitement mounting to fever pitch, the awe-struck children were led in to where the hundreds of gaily wrapped packages were literally pyramided. Santa and his helpers began to distribute the gifts to the rhythm of "Oh's" and "Ah's." It was the big moment of the day, and noisy and gay enough to please everyone.

DECEMBER 25th found the USS *Sicily* in port at Yokosuka, just on time for a visit from Santa-san, to the ship-board celebration. *Ichi-ban* (number one) idol of *chisai* (small) children everywhere, the jolly St. Nick arrived in plenty of time to distribute candy, toys and clothes to the 105 small Japanese orphans invited to the party.

And this year—north, south, east and west—the Christmas story will be continued wherever Navy men and women are. It will be another big episode in Operation *Christmas*. Santa Claus in Navy blue will fly again.

Nor is it done just to hear the words, "Thank you, Mr. Navy, very much," though that is part of the joy. The motivation is the same good will the angels heralded at Bethlehem years ago.



CANDY and nuts top off Barbara's new clothes and doll, Santa's gifts at the Pensacola party.



THE GIFT is larger than she is, but that makes it more fun at VR-1's Christmas party.



CHERUBIC little Rosalie smiles her thanks to NAS Agana CPO's for their wonderful treat.



NAVCAD A. L. Trygland sits in the student's cockpit of the TF-86 in which he and North American's test pilot, Robert Hoover broke through the sound barrier at Saultley Field, the first NavCad to perform this feat.

VF-12 Men Solve Problem

FAIRJAX—For over five years scientists, engineers, technicians and Navy maintenance officers have worked on an electronics problem that two VF-12 sailors solved in less than two months.

The problem? What causes the landing gear of an F2H-2 *Banshee* jet fighter sometimes to fold after a pilot makes a touchdown or landing. Sometimes the left gear would fold; then the right one; then the nose, and often a combination of all three.

During May, two *Flying Ubangi* pilots suffered landing gear accidents in their *Banshee* aircraft. Another like accident occurred in June.

At that point, Bruce G. Pendelton, ALIC, and George L. Duval, AL2, started an investigation of their own. Probing deep into the *Banshee's* innards, through a maze of wires, switches, solenoids and electronic connections, the two electricians found that wires from the left main landing scissors switch had been mistakenly connected to the wrong terminals.

A host of electronics experts was called in to verify the Navy men's findings. Each connection was checked and double-checked. The findings of Pendelton and Duval were correct. A wiring discrepancy of the yaw dampener had been causing the gear failure.

In an appropriate ceremony at NAS CECIL FIELD both Pendelton and Duval—two sailors who outexperted the experts—were recently rewarded for their work with letters of commendation.

Aviation Safety Sparked Fleet Safety Officers Meet NASA

Marking an aggressive, revitalized aviation safety program, two conferences were held recently at NAS NORFOLK and NAS SAN DIEGO. Here, for the first time, squadron aviation safety officers of an entire fleet were assembled for examination of the ways and means of taking positive action to obtain the highest degree of aviation safety.

Staff members of Naval Aviation Safety Activity gave the entire presenta-



SAFETY LEADERS ATTENDED CONFERENCES

tion at both conferences, emphasizing the increased activity and potential contribution of the individual aviation safety officer.

Capt. J. W. Byng, OinC of NASA NORFOLK, summed up the objectives of the Naval Aviation Safety program: To eliminate all avoidable aircraft accidents and to develop and project on a continuing basis patterns of thinking that will insure maximum safety in all operation and maintenance of naval aircraft.

He concluded: "It must be made convincingly clear that safe operation of high performance aircraft does not permit any deviation from established doctrines and techniques—there can be no compromise if naval aviation is to achieve its goal of maximum safety without any loss of combat effectiveness."

Shown in above picture are RAdm. O. B. Hardison, Special Assistant to DCNO (Air) for Aviation Safety, Col. Frank Schwable and Capt. J. W. Byng.

● **USS POINT CRUZ**—When the *USS Point Cruz* arrived in Yokosuka recently, she carried a gift that had traveled a third of the way around the world to complete the first part of its journey to Korea. Nearly a ton of clothing donated by NAS SAN DIEGO personnel for orphanages, missions and other charity centers throughout South Korea was the cargo the ship transported.



AT NAS Barber's Point, Charles E. Bloir, AO1, designed a labor-saving hoist which lifts tow cable reel on to re-wind truck. Here Bloir displays the results of his reel ingenuity.

Flight Handbook Program

Complete, integrated and up-to-date operating instructions on each model of naval aircraft is the purpose of a new system BUAER is instituting. Technical orders, letters, and other types of publications and directives will no longer be used to provide operating instructions.

For example, the Naval Air Attache in Ankara, Turkey, will not be getting a technical order on the *Banshee*. Notification of changes or restriction will be going only where they are needed.

This is done by establishing a rapid and effective means of revising Flight Handbooks which are the official instructions for particular models. *Pilot's Handbook* was the term for the older volumes of this type.

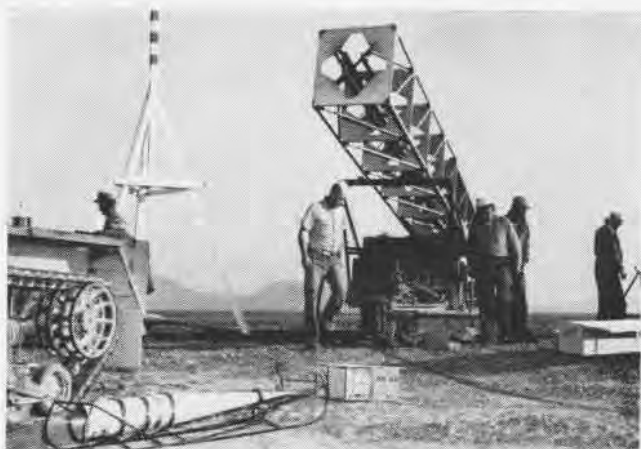
Regularly, revisions are procured from the aircraft manufacturer and issued to the field at 90-day intervals. These incorporate new or revised handbook information where immediate promulgation is not required.

Interim revisions relating to such matters as operating limitations, restrictions and other vital operating instructions will be issued by message or speedletter. If such speed is not essential and yet a regular revision will not suffice, then an interim revision is printed.

Full details of the new system of channeling information to operating activities via the Flight Handbook system are contained in BUAER Instruction 5600.9 of 23 August 1954.



THE LONG cone-shaped nose of this 13½-foot rocket holds the new parachute, which is under test at White Sands Proving Grounds.



MISSILEMEN ready the launcher for test firing of the new 'Pogo' parachute. Disassembled rocket components lie in foreground.

FLOATING TO EARTH ON SILK AND SILVER

A NEW parachute has been unveiled that provides guided missilemen with a new and inexpensive target which is nicknamed Pogo. The new device was developed for BuORD by the Physical Science Laboratory at the New Mexico College of Agriculture and Mechanical Arts.

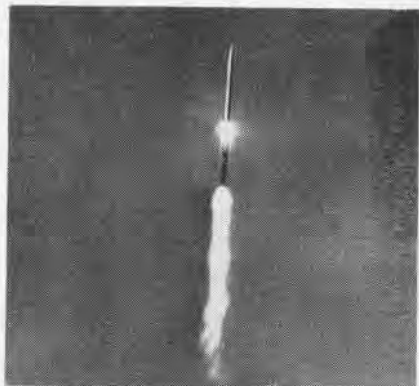
It is the first high-altitude target to be developed for guided missiles. Housed in a 13½ foot rocket, the chute is automatically zipped open at a pre-determined altitude.

The parachute silk is coated with a thin layer of metallic silver to reflect signals and, at high altitudes, the echoes

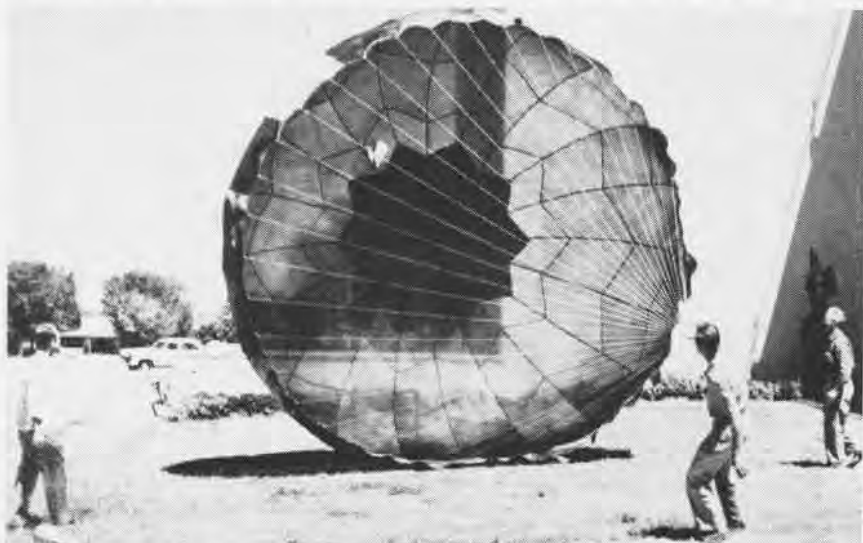
resemble an aircraft on the radar scope. It floats to earth slowly with only the 17-lb. nose section of the rocket serving as a stabilizer. As a result, more than one guided missile can be fired at it.

The rocket-parachute technique represents the first true physical simulation of a high-altitude target for guided missiles. Heretofore, targets have been too expensive for test and evaluation.

The parachute has a diameter of 20 feet. The rocket which carries it is fired vertically from a portable launcher located at the scene of the practice firing. Tests and evaluation of the new chute were carried out at White Sands.



PREPARATORY to ejecting the parachute, the rocket roars up into space, spurring flame.



DEPLOYED to its full 20-foot diameter, the silk chute is recovered after a test firing. The fabric is coated with a very thin layer of metallic silver, which reflects upon radar scope.



AFTERBODY of the rocket lies partially buried in the desert sand after the firing.



TWO NEW operational jet aircraft joined units of the Fleet recently in the Jacksonville area. VF-13 pilots at NAAS Cecil Field, were the recipients of the Grumman F9F-8 Cougar and the first to receive



this swept wing plane. In Jacksonville, VF-173 began turning in F9F-6 Cougars for the North American FJ-3 Fury and thereby became the first Navy fighter squadron to receive this supersonic plane.

Bail-out Trainer in Use Installed at Corry for Students

A new bail-out trainer has been initiated at NAAS CORRY FIELD.

While a group of student flyers stood by, Capt. J. G. Craig, Corry CO, made the first jump from the stationary plane's cockpit.

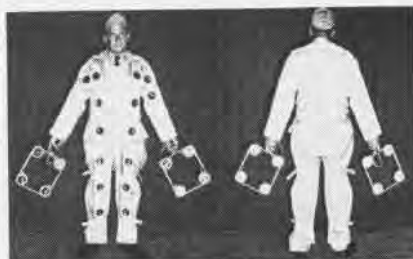
A full power turn-up of the plane's engines simulated the slip stream that a pilot encounters when forced to bail out of a crippled plane. On signal, Capt. Craig shoved the canopy back, released his shoulder harness and "hit the silk." He landed in a net erected beside the plane and beneath the cockpit.

Introduction of the primary phase of flight training necessitated the installation of the bail-out trainer at Corry Field. Before this installation was made, student pilots were given bail-out procedures at NAAS WHITING FIELD.

Total cost of the net and trainer was \$1,600. The net was constructed by the Special Devices Center and the plane, less engine, was obtained from salvage and renovated under the direction of Lt. G. C. Harrison. Corry's Maintenance Department installed the engine and does the maintenance on it.



CAPT. CRAIG, CORRY CO, 'HITS THE SILK'



LT. J. J. MCCADAMS MODELS LSO SUIT

Night LSO Suit Improved McCadams of ATG-201 is Inventor

Lt. J. J. McCadams of Air Task Group 201 has come up with an improved version of the LSO suit which promises to replace the one now in use.

Discomfort in his job aboard the USS *Coral Sea* sparked an idea, and the new suit was the result. McCadams was on the LSO platform of the *Coral Sea* one warm night waving planes aboard, and he was uncomfortably hot. He had had a great deal of trouble getting into the old coverall type suit.

After he was relieved that night, he began the task of redesigning the suit. One of the ship's parachute riggers helped him construct it.

Giving the appearance of an animal skin, the new suit has only a front half, except for a full set of sleeves, a shoulder strap, a waist strap and two straps on each leg.

Another original idea is the lighting. If for any reason the suit lights fail, all the LSO has to do is to flick a switch and fluorescent cloth strips on the suit are illuminated by the ship's "black light."

Lighter and cooler, the new suit is easy to wear. Pilots who have been waved aboard with McCadams' suit say that it shows up much brighter and clearer than models presently in use.

Honolulu Traffic Discussed CAA and Navy Study the Problem

Heavy air traffic at the International Airport at Honolulu is not new, but the arrival of jet aircraft complicates the landing sequence system. That is why Civil Aeronautics Administration authorities and Navy representatives have met to solve the problem of controlling fast jets and not-so-fast airliners in bad weather.

With the jets' greater speed and shorter endurance, a mixture of jet and slower prop-driven aircraft over an airport resembles a race track with both race horses and speeding cars.

The solution to the problem was undertaken by one of the Navy's veteran night and all-weather flyers, Capt. W. I. Martin, CO of FAWTUPAC. He decided to bring together jet pilots and CAA air controllers, two groups who seldom meet except in radio conversation during let-down. He invited them to lunch.

Afterwards Mr. E. N. Smith, CAA regional administrator, his controllers, and other key personnel were invited to take flights in squadron TV-2's.

In four-plane flights, the controllers were taken by Navy pilots to 20,000 feet. The pilot then called CAA Approach Control for a let-down and approach to the International Airport. This gave to the airborne controllers actual experience of a jet penetration, or let-down, controlled from the ground.

In turn, Mr. Smith has invited all FAWTUPAC pilots to visit the Approach Control Center. The visits were immediately scheduled by Capt. Martin in order that each pilot enrolled in the all-weather school could see for himself how CAA handles complex traffic problems in the area.



LIFE OF JET FUEL BEGINS HERE IN CRACKING PLANT



MAMMOTH PUMPING STATIONS SPEED THE PETROLEUM ACROSS THE CONTINENT

KEROSENE POWERS NAVY'S SKY WARRIORS

LITTLE did our grandfathers dream as they read by lamp light that kerosene would become one of the great sources of engine fuel in the twentieth century. Not even the Wright brothers

could have imagined its future importance to the aviation world.

Today as high speed jet aircraft race across the sky, most of them derive their operating power from kerosene.

Engines have, of course, been only as effective as the fuels that powered them. Only by having a well-coordinated team of engine designers and fuel experts has it been possible to produce



BECAUSE OF THE HIGH FUEL CONSUMPTION RATE OF JET AIRCRAFT, THE OPERATING CARRIER MEETS THE TANKER REGULARLY



A NAVY AJ SAVAGE DEMONSTRATES PROBE AND DROGUE SYSTEM OF INFLIGHT FUELING

power plants equal to the demands of transonic flight.

What oil has meant in terms of international interests is a story in itself. As the world became more and more committed to mechanization, it was inevitable that the natural resources which yielded power should increase in value. The age of atomic power has dawned, but fuel derived from oil is still of tremendous importance.

Thousands of pilots the world over man their planes with their heads full of aeronautic lore, navigation information and current flight instructions, but they know little about the fuel that gives them power.

All they know is that they have to

have it. As the author of *Fuel Saving Sense* so succinctly put it: "There are just two kinds of aviators, the fueled and the fooled." He went on to show the advantages of making sure that



LUBRICANTS ARE READIED FOR SHIPMENT

bon and hydrogen produce peak performance.

Military specifications take into account high speeds and combat needs. To get performance, piston engine fuels are made up of specially manufactured chemicals and carefully selected petroleum fractions.

For naval aircraft, there are four grades of aviation gas for piston engines. Each grade has a different color—not to match the pilot's suits, but to comply with the public health law which requires that leaded fuel be colored.

Originally Grade 80, when it contained tetraethyl lead, was colored red; otherwise, it was dye-free. Grade 91/96 was colored blue. Like Grade 80, it is used for light aircraft and helicopter engines.

The other two grades are used for high performance piston engines. Grade 100/130—green in color—was the high-specification fuel of WW II, and then toward the end of that conflict, the purple-hued 115/145 came into being as the last word in refinement.

Now aviation gasoline, because it is chiefly a hydrocarbon compound,



SEAPLANE IS FUELED FROM SUPPLY BOAT



WING TANKS EXTEND JETS COMBAT RANGE

you had enough on hand so that you did not arrive finally by parachute, wheelbarrow, ambulance or stretcher. Yes, everyone agrees, it's something you need.

There is no such thing as the "ideal fuel" in general terms. A fuel that meets the need of a combat piston engine aircraft will not work in a diesel engine and vice versa.

Fuels are a great deal like food—you are what you eat. If you want energy, protein is one necessity. In fuels, "pro-

except for the addition of such chemical agents as tetraethyl lead, inhibitors and dye, can develop a maximum of power in high compression or super-charged engines without detonating or knocking. This particular advantage makes it possible to reduce the weight of the engine per horsepower produced.

The development of fuels for aircraft is substantially the story of increasing that advantage—to get more horsepower for the amount of fuel carried. From the Wright's 12-hp engine which powered the first flight, it is a long way to reciprocating engines in the 3500-hp range—the P&W R-4360 *Wasp Major* and the Curtiss-Wright R-



PORTABLE TANKS ON THE BEACH UP NORTH

3350 turbo-compound engines. And it is still farther to the big jet turbines such as the J-57 and the Curtiss-Wright J-65 *Sapphire*.

In 1909, the official international speed record was 46.8 mph whereas today the speed of sound has been exceeded many times. It is a solid achievement built on aircraft and engine design—and fuel tailored to meet the demands of high-powered jet turbines.

Jet fuels now used by the Navy consist entirely of hydrocarbon compounds, except for the addition of chemical agents designed to protect the engine. Jet fuels—JP-3, JP-4, and JP-5—meet the military specifications which require that they be free of water, sediment and suspended matter.

Salt water is a critical problem in jet engine operation. It's the gremlin that gums the works, so every effort is made to be sure that the fuel is salt-water free insofar as possible. Jet fuels differ from conventional aviation gas in that they contain no tetraethyl lead and are undyed.

JP-2 was never actually used. JP-1 is basically kerosene, and so is JP-5. JP-3 and JP-4 are petroleum blends, essentially a mixture of gasoline and kero-



FLEET TANKERS ARE VITAL LIFELINES IN SUPPLYING FUELS TO THE AIRCRAFT CARRIERS

sene. However, they do have certain characteristics that are not common to either gasoline or kerosene.

The Naval Fuel Supply Office, located at the Naval Gun Factory, Wash-

were originally established in September 1952.

However, with the development of JP-5, it has been necessary for the Center's Fuel Supply Depot to convert some of its present facilities to enable it to handle efficiently, economically and safely the new fuel.

The faster jets go, the more fuel they consume. The faster they consume fuel, the shorter their period of flight. As research continues, it is expected that new and better types of fuel will be developed for jet aircraft. Further promise in the field of high density fuels is great, but whether these fuels can be produced practically on both a quantitative and economic basis may possibly prove to be a difficult problem.



LOW OCTANE FUEL IS PUMPED INTO HO3S

ington, D. C., and headed by Cdr. J. K. Webster, orders and delivers every gallon of gasoline, jet fuel and lubricant the Navy uses. This runs into the millions of barrels in the course of a year.

At the Naval Supply Center, Pearl Harbor, the location of the Armed Forces' largest fuel facility in the Pacific, four jet fuels have been handled. Their handling has required a few changes in the jet fuel facilities, which



LATE MODELS OF THE PANTHERS USE JP-3

MIAMI PILOTS FLY WEATHERMEN TO BAHAMAS



MIAMI NARTU's big Catalina is used on special service to transport experts of the U. S. Weather Bureau to outlying weather stations in the Bahamas. Here the specialists and crew members disembark to inspect the weather station located at Clarence town.

WHILE the primary mission of NARTU Miami is the support and training of Week-end Warriors, certain other duties give a change of pace in the training program.

Once a year, for several years, Miami has provided transportation to the Bahama Islands chain for U. S. Weather Bureau experts on their annual inspection tour of weather stations.

These stations, British-owned and British-operated, play a vital role in the hurricane early warning service. This kind of service substantially reduces damage in the islands and on the mainland.

Efficient operation of the weather service involves the annual inspection

of the weather stations. Isolated as they are, the men at these posts up and down the Bahama chain need such visits to keep them in touch with the entire program.

Most of the weather observers are not highly skilled, so they need help in maintaining delicate instruments and direction in using them efficiently. Often it is not possible to give them adequate direction from headquarters, and special instruction must wait upon the annual inspection tour.

About the only way to reach these lonely areas is by aircraft, and water landings are the rule. The big Miami PBV is a welcome sight to the Bahamas.

Liberty on most of the islands is

really only a chance to stretch one's legs, for there are none of the recreation facilities of mainland civilization on these small bits of coral rock with a few under-nourished trees and a small, primitive native population.

But the tour is not without its highlight—Nassau on Grand Providence Island. Here pilots and crewmen find plenty to do and much to see. A British colony with foreign atmosphere, it lives up to its reputation as a delightful place to spend time—and money.

The inspection trip not only is an asset to the hurricane warning service, but it is an admirable example of international cooperation. NARTU Miami is happy to play a part in the service.



AT RAGGED Island, Lt. Jim Reeder, co-pilot, runs out on wing to meet welcoming natives.



ON TURK'S Island, B. P. Mackinney, AD2, and R. K. Burr, AD1, chat with local constable.



LT. JIM Reeder, PBV co-pilot, relays information from Guaniamoo Bay on up the line.



NOT ALL weather stations are as large and comfortable as this one located at Hope Town, but all form vital links in weather chain.



BAHAMIAN children show more interest in Navy photographer than in weather experts Robt. Barlett, on mast, and Walter Davis, on roof.



PALMS and guns make striking contrast as crewmen take in sights on Turk's Island.



UNCLE Richard, 82, who meets the plane at Ragged Island, sails in boat he built himself.



AT INAGUA, D. M. Oglevie, AT1, looks out at Miami PBY waiting for return of weathermen.



THE "PEACE and Plenty" Building at Georgetown with British flags flying stands at end of Bahamian road lined with trees and wall.



MAIN STREET at Turk's Island where many a Caribbean hurricane originates. Towering cumulus in the background looks suspicious.

CARRIER HELPS AFTER HAZEL HURT HAITI



WHILE the USS Saipan was enroute to relieve the Monterey at flood-stricken Honduras, she had to sit out hurricane Hazel at Guantanamo Bay.

She was then diverted to devastated Haiti since the Honduras situation was no longer critical. Del Marie village is shown above.



DRY RUN of stretcher loading took place before succor flights to 80% demolished southwest cities. Food, water shortages were serious.



SAIPAN helicopters, delivering emergency rations and medical supplies, were prepared to evacuate the seriously injured to nearby hospitals.



HUNDREDS were killed or injured. Survivors were shocked, frightened, hungry, thirsty.



DEL MARIE nun aided Marine pilots in rescue work. Stench of unburied dead filled the air.



AID to Honduras victims (above) by Monterey was re-enacted at Haiti by Saipan corpsmen.

Quantico Pair Saves Man Helicopter Landed in Front Yard

Majors Gilbert Percy and William J. Tebow were on their way from Norfolk to Quantico recently when they spotted a farmhouse afire. They landed their helicopter nearby and rescued the lone occupant, an invalid.

Proceeding to a nearby farmhouse, they called the local fire department and were airborne again before the trucks arrived to put out the fire.

Their quick action saved the invalid's life.

Oriskany's 'Pups for Polio' Crew Meets Emergency with \$1000

The officers and men of the USS *Oriskany* dug deep into their pockets recently and donated an additional \$1000 to the California Emergency March of Dimes Drive. Numerous polio epidemics throughout the nation necessitated the emergency appeal.

The *Oriskany's* famed mascot "Schatzie" decided to get into the act this time too and donated her third litter of pedigreed pups for the cause. In a special drawing on the hangar deck of the carrier, the pups netted \$1000.

Schatzie was presented to the crew by Andrew Lynch, the American Consul General at Tripoli, over three years ago when the *Oriskany* visited that port. She has traveled over 75,000 miles of combat cruising off Korea. It was during one air attack by the "Mighty O" on Communist installations in Korea that her first litter of pups was born.

Since that time her pups have raised over \$28,000 for charitable drives.

Later, on the flight deck, Schatzie, held by CSC Overcash, handed the check for \$1000 to Col. E. Hunting, San Francisco Bay Area Chairman for the March of Dimes. Capt. L. C. Simpler is skipper of the *Oriskany*.



SCHATZIE, OVERCASH, HUNTING AND CO

AIRLANT'S AIRBORNE MOVIE EXPERTS



SOREY AND CREW SHOOT CARRIER SCENES

THE SHOW goes on! Hundreds of men can watch as a new technique is demonstrated, a tactical exercise re-told, or an important equipment shown in operation. But before this happens, the intricate and involved job of film recording must be done.

On the east coast, this is the kind of work accomplished by the AirLant Motion Picture Unit which operates along lines that are conventional in the motion picture industry. Eleven men and one officer-in-charge are responsible for taking pictures of Navy sea-based activities along the east coast.

Headed by LCdr J. H. Sorey, the unit looks like a miniature NPC. Myriads of lenses, rangefinders, reels and motor rheostats, along with the cameras and supplies, are needed on every job.

Probably the most important work to date for the unit was the filming of operations *Mainbrace* and *Mariner*. These productions were financed by NATO countries and narrated by Westbrook Van Vorhees. Copies of the production, *Seapower for Freedom*, were distributed to each of the NATO members.

Using this documentary film, they can study the different phases of operations including the landing parties going ashore, and the close air support supplied by the Carrier Task Force.

Large scale productions are not the only responsibility assigned the unit. It also works on two other categories of motion pictures: newsreel and general interest.

Since its founding in 1950, the Air-

Lant Motion Picture Unit has exposed over 313,000 feet of 35-mm film on eleven cameras and 135,000 feet on four 16-mm cameras. This would reach from Baltimore to Philadelphia.

The two most important jobs of the motion picture unit are making films for training use and public relations



SHIP ARRIVAL IS TIME CONSUMING TASK

films for national release. Training films are in great demand, especially for orientation into the Navy way of life. Films, coupled with on-the-job training, save the Navy many lost man-hours by showing how to cope with various situations.

In the public relations field, the unit supplies film to TV stations for their programs, showing how the Navy, its officers and enlisted men, do their part in national defense.

Periodic progress pictures of the construction of the new 60,000-ton *Forrestal* have been one of the unit's prime tasks since building began. From these thousands of feet of film will come a short feature.

Sorey and his crew have a demanding job, traveling from Guantanamo Bay to Boston. But they get there with the aim of keeping the cost at a minimum and the effort at a maximum.

IFR-IQ?

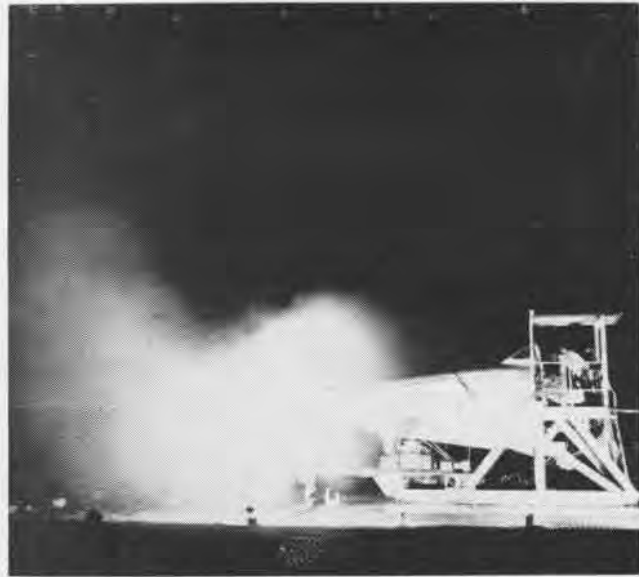
ATC is authorized to assign altitudes for instrument flight:

- A. Only in elsewhere areas.
- B. In both control zones, areas and elsewhere areas.
- C. Only in the United States.
- D. Only in controlled airspace.

Answer on Page 40



THE LATEST in automatic rocket launchers is modeled by this bulb-nosed F-89 Scorpion as it is readied for a test rocket firing run with Northrup test pilot Lew Nelson at the controls. Tabbled the



T-110, the new launcher is the latest addition to the Air Force's arsenal. Test-bed firing of the launcher produces a sheet of fire against the inky darkness at the test center in California desert.

British Test New Chute Equipment has 50' Jump Minimum

The British have perfected equipment which is designed to take the danger out of high speed ejection at low altitudes.

Recently, a Gloster Meteor streaked across a section of the English country side at a speed in excess of 500 mph and at a height of a mere 50 feet.

While horrified onlookers watched, a bundle came tumbling from the jet as it hedge-hopped across the terrain. A chute snapped open and the bundle drifted to the ground.

The bundle was a dummy pilot simulating an emergency jump. The Martin-Baker Company perfected the chute and ejection seat, and, with the 50 foot minimum solved, hopes to decrease this

to a low of 25 feet. It was considered unsafe to parachute from a height of 1,000 feet during WW II with the old standard parachute.

The Martin-Baker ejection system is much like that in Navy jet aircraft with a few exceptions. The face curtain is used in the same manner, and the cartridge ejects the seat along the rails. Once the pilot is ejected and free of the plane, a small drogue chute automatically opens to tilt the seat, and controls the opening of the larger chute.

The large drogue steadies the seat and slows it down, allowing the pilot to drift clear with his own chute fully opened.

The company claims that the entire process takes a mere ten seconds from time of ejection to parachute opening.

New Films Made Available For Public Group and TV Showings

Seven new training films, highly suitable for public group and television showings, have been made available. The "Annapolis Story" (MN-9241, color, 28 min.) shows midshipmen at work, play and aboard ship—a pictorial study of the lives of midshipmen from "pledge" to ensign.

"Report of the Navy" (MN-7866, color, 20 min.) describes the job of the U.S. Navy in preserving peace throughout the world.

"The Story of Naval Aviation" (MN-7969, b/w, 12 min.) portrays the growth of naval aviation from the Wright Brothers and the first carrier landing to naval jet air power from fast carrier task forces in the Korean war. It is highly recommended as a general interest film. "Carrier Action Off Korea" (MN-9272, b/w, 13½ min.) shows the important role of naval aviation in the Korean war.

"Take 'Er Down" (MN-9294, b/w, 13½ min.) reviews the history and growth of submarines from the *Holland* to the *Nautilus*. "The Chaplain Comes Aboard" (MN-9243, color, 13 min.) points out that no obstacle is great enough to keep Navy chaplains from their appointed rounds.

"David Taylor Model Basin" (MN-8095, b/w, 12 min.) has as its theme the search for new and improved designs in U. S. Navy ships and aircraft.



BOEING has unveiled the first production model of the Air Force's new B-52A Stratofortress. Powered by eight J-57 turbojet engines of 10,000 pounds thrust each, the huge bomber has a gross weight of 350,000 pounds. The B-52A differs from the two prototypes in that the cockpit arrangement has been changed to place the pilot and co-pilot in a side-by-side position.

THEY FOLLOWED THEIR NOSE TO FARNBOROUGH



NOSE VIEW of Gloster Javelin delta-wing fighter looks like tail view because of nose spear used to gather data on test flights.



SUPERMARINE 525, which passed through sonic barrier in a dive, represents interim development of supersonic fighter for Royal Navy.

THE THUNDER of sonic booms at Farnborough recently saluted British progress in aviation. Each year the Society of British Aircraft Constructors displays its wares at a gigantic show where hundreds of exhibits are on view, Britain's finest aircraft were on parade after they followed their nose to Farnborough.

The Farnborough Show is not billed as a spectacle, yet there are thrills. On 12 September, a crowd of 170,000 people, the largest number ever to attend on one day, witnessed a demonstration of supersonic dives. The attendance for the entire five days was estimated at 350,000, a fact that is impressive in the light of the miserable weather conditions that prevailed.

One spectator said, "As the de Havilland 110, the Hawker Hunter and the Supermarine Swift made supersonic passes across the rainsoaked field, one almost thought he was seeing flying saucers."

As the Swift entered the transonic region, two clear white puffs of condensation cloud were seen against the brilliant blue background of the sky.

In reporting the 1954 Farnborough Show, the *Economist* described it as "both a shop-window and an end-of-the-term report." It commented further, "Five thousand visitors from abroad do not make the journey to this country to watch clever flying; they could stay at home and see it in far greater comfort in a cinema far from Farnborough's spartan amenities. The annual Farnborough display is

a yardstick for the rate of progress being made in the aircraft industry, not in production but in research and development."

The Show held originally in 1920



POWERED by two Sapphire turbojets, Gloster Javelin is built for high altitude flight.



THIS IS one of first flight photographs of the Swift Mk IV, the RAF's very latest fighter.

and annually since 1932, save for the WW II period, is a traditional part of international aviation. Each year more and more aircraft are exhibited. For example, there were 65 aircraft this year as compared with 51 in 1946. Of the 65 shown this year, 13 were naval types.

In all there were six new types on view. Four of these, the *Midge*, the *Sherpa*, the *Jet Provost*, and the Type 525, were military types, while the other two, the *Comet* Mk. 2 and Mk. 3, were commercial types.

The mornings at Farnborough were devoted to the static displays while the afternoons were allotted to the flying program. Big crowd attracters were the *Midge*, *Vulcan*, and *Comet* aircraft. The Martin-Baker ejection training tower also enjoyed a brisk business from volunteers anxious for a free ride in the form of a sudden jolt up the tower.

The flying portion of the program consisted of 40 aircraft. On Monday, the preview day, rain set in and the visibility became poor, but this condition did not upset the arrangements, and the show went on as scheduled. A change in traffic control was necessary, however, since the visibility was less than two miles, and the ceiling was under 600 feet. Needless to say, after an aircraft left the end of the runway it quickly disappeared.

To bring the aircraft back over the runway for the speed runs, it was necessary that radar ground control take over. As a result, some sort of a record



FAIREY Gannet, an ASW three-seat aircraft, was shown with its ornament fully displayed.



HAWKER single-seat Sea Hawk is shown with rockets installed for an assisted take-off.

was created when Farnborough became the first air show to be conducted by radar. The skill of the pilot and the ability of the radar controller was clearly demonstrated by a *Swift* Mk. 4 as it made a high speed level run over the runway, ending its run in a roll that could only have been made on instruments.

It was anticipated that this year the much heralded *English Electric* P-1, a supersonic twin-jet fighter would be exhibited at Farnborough, but it did not appear. To a certain extent the Folland *Midge* offset this disappointment for the observers.

The *Midge* was given its first public



THOUGH essentially similar in design to the *Gnat* light fighter, the *Midge* is merely a prototype, intended to try out characteristics of that type pending availability of *Orpheus* turbojet

demonstration. Against the sky, it looked like some small, streamlined missile. It is reported that air-to-air at 800 yards, the *Midge* is virtually invisible, a valuable asset against opposing fighters who would probably not



SILHOUETTE of Meteor in flight demonstrates wing tip installation of *Soar* jet engines.



SOAR on Meteor wing tip is a small simple turbojet with big output of 1,810 lbs. thrust.

see it at all, and even if they did, would have no time for sighting.

Star of the Show, the *Midge* is powered by an *Armstrong-Siddley Viper* 101, rated at only 1,640-lb. thrust, yet the *Midge* can exceed 600 mph in level flight and dive at better than Mach 1. This is made possible by its small dimensions—wing span is a mere 20 feet 8 inches—and fine aerodynamic design. The *Midge* has a rather con-

troversial background and is actually only a prototype aircraft in a development program designed to create a light weight interceptor. The final product, the *Gnat*, will be practically identical in appearance to the *Midge*.

The *Gnat* will be using a new light-weight turbojet engine, the *Bristol Orpheus*, which is now under development. Although it yields exceptional power in relation to its size, this engine has been designed to have a nor-



VICKERS Valiant will be the first four-jet bomber to enter service with Royal Air Force.



VALIANT'S introduction is greatest addition to British offensive strength since World War II.

mal life and overhaul duration. It is commonly mentioned as having possibilities as an interim Navy carrier jet fighter. It is uncomplicated by many refinements and features common to the more powerful general purpose turbojets used in standard fighters.

The *Gnat* is being designed for swift, efficient production. Folland claims that it will be able to produce 50 *Gnats* a month within two years from initial order.

The *Meteor* demonstrated an unusual development, the attachment of *Rolls-Royce Soars* directly to its wing tips. Each *Soar* weighs about 275 pounds. The *Soar* is a simple axial turbojet with the tremendous output of 1810-lbs. thrust which is equivalent to *Rolls-Royce's* first jet engine at half the weight and a fraction of the size. On the *Meteor* fighter, it is, of course,

being used as auxiliary cruising power or as supplementary take-off power. On one of fly-bys, the *Meteor* zoomed over the runway with its two main jet engines cut off, powered by its auxiliary *Soar* jets.

Production versions of the *Swift* on view included two F-4's and one F-3. One *Swift* F-4 with afterburner was flown in the afternoons while the other remained on static display. Its external armament included a load of eight rocket projectiles under one wing and a 1,000-lb. bomb under the other.

This year at Farnborough, the *Javelins* were rolled out in force. Five of these all-weather, delta-wing, twin-jet fighters were flown around the field in formation, and it was announced that the *Javelin* had passed through the sonic barrier in a shallow dive during tests.



SEAMEW, a light, carrier-borne, ASW fighter, is powered by turboprop, has a crew of two.



INTERESTING research aircraft, forerunner of English Electric, P. 1 is the Short S. B. 5.

Short Bros. and Harlan Limited stood out in the exhibition with the "aero-isoclinic wing," tailless research monoplane called *Sherpa*. [Editor's note: *Aero-isoclinic* refers to a design which reduces the twisting that occurs when a thin swept wing is flexed or bent. It can usefully be combined with all-moving tip controls.] The diminutive black-and-silver *Sherpa* attracted much attention as it sat very flat on the ground at no more than shoulder height. Unbelievably small!



ORIGINALLY designed for shore-based service, this supersonic, twin-jet, all-weather day and night fighter, the D.H. 110, is being developed as a replacement for the carrier-borne *Sea Venom*.

An interesting contrast in wing shapes was apparent in comparing the *Sherpa* with another experimental aircraft, the Fairey delta FD-1. The Fairey machine with its elevons and fixed wing tip slats, intended for the utmost structural rigidity, is just the opposite of the *Sherpa* with its controlled twisting of the aero-isoclinic wing.

Fairey has recently completed the FD-2, a successor to the FD-1 with a



FAIREY FD-1 was research aircraft, which made first flight in 1951, just now publicly shown.



ONE OF new aircraft presented was Hunting Percival Jet Provost, a two-seat trainer.

more powerful Rolls-Royce *Avon* jet engine. The new aircraft possesses a unique swordfish type nose which can be lowered in drawbridge fashion during taxiing, take-off, and landing to afford the pilot a better forward view.

The prototype of the *Jet Provost* two-seat primary trainer began flight testing on 26 June. It is a side-by-side turbojet trainer and is a development of the *Provost* Mk.1 prop trainer. The same wing and tail components are used. However, the *Jet Provost* differs by the addition of a nose wheel type landing gear and a 1,640-lb. thrust *Viper* jet engine, the same engine that is used by the *Midge*.

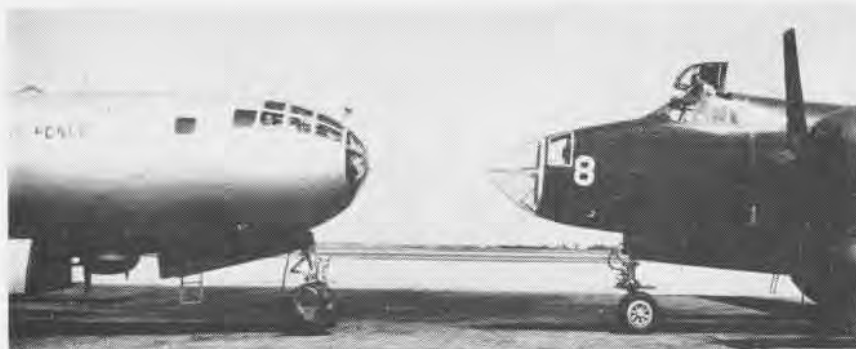
In previous shows, the familiar de Havilland 110 appeared in RAF colors. This year it was featured as a naval fighter. Evaluation tests consisting of carrier landings were carried out on September 23 on the HMS *Albion*.



AVRO Vulcan presents classic delta design with grace unusual for such powerful craft.



VULCAN is due to be powered by four Olympus turbojet engines. It flies at 50,000 feet.



AN AIR Force B-29 Superfortress and a Navy P2V Neptune are taxied into a "rubbing nose" position as the wind-up of a joint antisubmarine exercise off the east coast of Florida. The joint accomplishment was commanded by Capt. Theodore O. Dahl, Commander Fleet Air Wing-11. It was first time since end of WW II that the Navy and Air Force worked at such a venture.



VADM. T. S. Combs, Com6th Flt, and **Capt. Harry E. Sears**, CO of the USS Coral Sea, scan the vastness of the powerful U. S. Sixth Fleet with **Generalissimo Franco** off Valencia, Spain.

Quonset to Repair F7U-3 Center will be Ready Early in 1955

BUAER has designated the Overhaul and Repair Department at NAS Quonset Pt. as the only F7U-3 crash-damage and overhaul point on the east coast.

Under the direction of Capt. N. B. Kiergan, Jr., O&R is devising an overhaul program to facilitate the handling of the swept wing fighter. Operations are expected to begin soon.



DURING a break in the shooting of the film 'Mr. Roberts', **Lady Leatherneck** Marjorie A. Woods was surrounded by actors **Bill Powell**, **Henry Fonda** and **James Cagney**. The actors have returned from MCAS Kaneohe Bay.

VR-22 Instigates New GCA R5D Radar Utilized for IFR Landing

During the recent Beaufort Sea Expedition, members of VR-22 utilized the standard radar system in an R5D aircraft to land another under GCA conditions.

When the expedition's area was hit by a siege of bad weather, the crew of the plane taxied it out, parked it near the end of the runway and used its radar scope to bring in an R5D that had been on an ice recon mission.

Canadian officials at Resolute Bay expressed their delight in Yankee ingenuity which worked so well in this emergency.

Thirty-one members of VR-22 participated in the Beaufort Expedition, providing long range ice-reconnaissance work that was necessary to complete the expedition's mission.

The Beaufort Sea Expedition, a joint U.S.-Canada venture, was organized to obtain vital hydrographic and oceanographic data in the North.

Kiwanis Has 4-Hour Party Kids Take Over at New Orleans

A four-hour invasion of NAS NEW ORLEANS by 500 youngsters climaxed the Crescent City's "Kiwanis Kids' Day."

Sponsored by the Kiwanis Club of New Orleans, this tour gave young aviators of tomorrow a complete air station tour, including the training, maintenance and special services departments. Afterwards the youngsters relaxed in the station auditorium, eating lunch as they watched two motion pictures.

Full of ice cream and hot dogs, the would-be birdmen left reluctantly.

CORRECTION

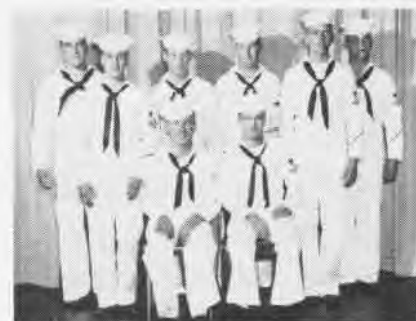
The "Ejection Procedure" article appearing in the September issue of NANews, pp. 16-17, contained an error on the part of the contributor. The F9F ejection procedure, Para. 5, second line, should read: "thumbs out, palms in."

It is suggested that the correction be made on all bulletin board displays of the article, together with any additional means of dissemination considered appropriate and effective.

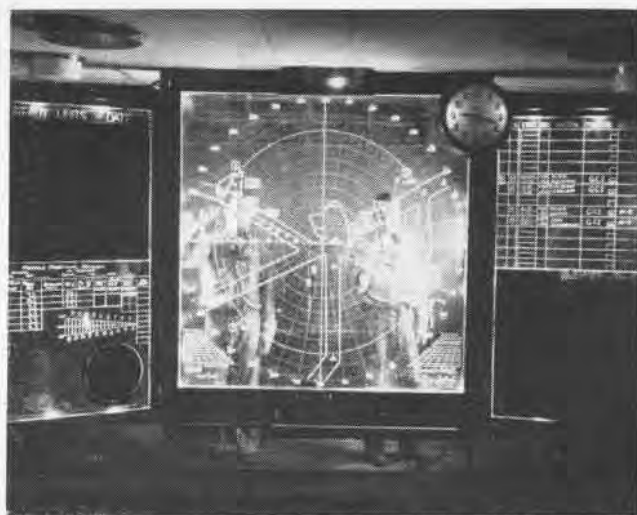


BOASTING a fuselage which is eight inches longer than her five predecessors, the Air Force's new F-86K is readied for flight. Packing four 20 mm cannons, sixth of the Sabrejet series is an all-weather fighter.

● **NAS JACKSONVILLE**—First of a group of Navy helicopters that eventually will form the Atlantic Fleet's only helicopter pool was accepted here by Cdr. Herold J. Weiler, Jr., CO of FASRON 6. The move is designed to relieve fleet helicopter units of spare 'copters they'd been assigned in excess of operational requirements.



IT'S ALL in the family! Four sets of brothers at NAS Niagara Falls prove it. Standing left to right: **Walter**, AD2, and **Richard Walker**, AM2, **Walter**, RM3, and **Stuart Allen**, EM1, **Raymond**, AD3, and **Thaddeus Salasavage**, AD3; seated, **James**, SN, and **John Wolfgang**.



RADAR TOWERS AT MARIGOLD ARE ON GUARD DAY AND NIGHT THIS BOARD KEEPS TRACK OF ALL A/C IN THE HAWAIIAN AREA

'MARIGOLD' ISN'T ALWAYS JUST A FLOWER

Most people, when they hear the word *Marigold*, think of a yellow flower. But to thousands of aviators who have flown in the Hawaiian area, *Marigold* means something entirely different—sometimes the difference between life and death.

For *Marigold* is the largest radar station in the islands. Located at NAS BARBER'S POINT, it is a part of the Fleet All Weather Training Unit, Pacific, under the command of Capt. W. I. Martin.

Primary mission of *Marigold* is the training of all weather fighter pilots and aircontrollers. Pilots are trained to intercept other aircraft under the low visibility conditions. Aircontrollers learn to interpret information given by radar and direct all weather pilots into a position from which they can, using their own radar, complete the interception and "kill the attacking bomber." Controllers are trained in both synthetic and actual interceptions. A secondary mission of *Marigold* is participation in search and rescue operations.

A pilot who is lost can ask for help in a number of ways. He can call *Marigold* on radio and ask for directions home. If his radio is out of order, he can still call for aid by simply flying a square pattern to the right to indicate he is lost. If, after flying that pattern for a reasonable length of time, the pilot has not received directions, he flies a square pattern with left turns which means he is lost, and not receiving any-

thing on his radio. In that case *Marigold* directs another plane to him to lead him home.

Some aircraft are equipped to transmit an emergency signal which can be detected on radar. When *Marigold* operators see such a signal, they immediately notify rescue headquarters. For example, on March 16th Ltjg. Charles Larson, operating a *Cougar* jet from the USS *Boxer*, was forced to bail out of his crippled plane 60 miles southeast of Oahu. Because of radio failure, the jet with him was unable to call for help. However, the emergency signal was detected by Lt. R. E. Klein. *Marigold* personnel determined the exact location of the signal and notified

Search and Rescue headquarters.

Larson, who was seriously injured and is still confined to a bed in Tripler Army Hospital, was picked up by a DD within 90 minutes of the time—0745—he went down. The fact it was not until shortly before 0900 that Larson's companion was able to land on the *Boxer* and announce the bail-out, shows the speed of rescue operations. The promptness with which *Marigold* detected and pin-pointed the distress signal, spelled the difference between life or death.

AT NIGHT or in bad weather, *Marigold* works closely with Air Traffic Control personnel of CAA. Using what are termed the "operational departure" and "operational approach", *Marigold*, in conjunction with the GCA unit at NAS BARBER'S POINT, controls the military aircraft operating from the air station for ATC and thereby relieves it of the tremendous burden of handling the majority of training flights.

Marigold is also an important link in the far-flung defense network of radar stations. As the Air Defense Direction Center under the control of Capt. C. Briggs, *Marigold* keeps track of all aircraft in the Hawaiian area, maintains a summary plot of their movements, and directs the interception of all unidentified aircraft.

Marigold is no flower, but, for the job it does, it rates Hawaii's finest bouquet for highly efficient service.

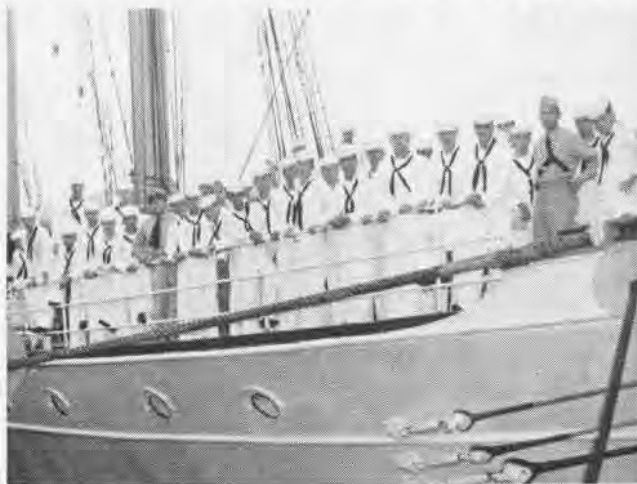


RESCUED LARSON THANKS RICHARD, KLEIN

CONTINENTAL CRISS-CROSS MARKS TRAINING



FIRST east-bound cross-country flight echelon of Marine Air Reservists are greeted by BGen. Lamson-Scribner at Cherry Point.



A VISIT of the Chilean Naval Training vessel "Esmeralda" gave 40 NAS New Orleans boots a look at the 'old' Navy of sailing ships.

NOW A MATTER of history, Operation Alert is being termed the most successful summer maneuver ever engaged in by the Flying Leathernecks of Marine Reserve squadrons.

From 25 Naval and Marine air stations, stretching from coast to coast and border to border, thousands of civilian Marines converged on the two major maneuver points for two weeks active duty which was to include practical application of battle theories.

In addition to being the biggest maneuver since the cease-fire in Korea, 1953, Alert was a gigantic cross-over. Twelve fighter and five air control squadrons west of the Mississippi made a cross-country trek to MCAS CHERRY POINT for their intensive training. Two weeks later the 16 fighter squadrons and seven air control squadrons from stations east of Old Man River journeyed to MCAS EL TORO, Calif. for their two weeks.

There were two exceptions to the continental criss-cross: VMF-111 at Dallas and VMF-236 at Denver. These two squadrons were in the process of converting to jet planes, and they elected to build up jet time at their own field, rather than attempt cross-country flights.

Throughout the periods of training, at both maneuver points, emphasis was laid on the primary mission of Marine fighter aircraft—to provide air support of Fleet Marine Force operations by destroying airborne enemy aircraft

and missiles and by attacking surface targets. Pilots concentrated on precision flying, gunnery, rocket-firing and bombing.

MCAS EL TORO put its 200 Reserve pilots through a special course in close air support techniques. Instructors were Navy, Marine and Air Force pilots on loan from the Air Support School, Amphibious Training Unit at Coronado.

All pilots were given two days of classroom instruction in such subjects as aerial map reading, tactical air support, control agencies and procedures. This was followed by ready room briefing and airborne instruction.

Highlighted at both East and West Coast maneuvers, was training of the Marine Air Reserve "radar" squadrons. Officially termed Marine Air Control Squadrons, these units form an outstanding air combat organization composed of mobile units of electronics spotting, tracking, and plotting devices to locate approaching enemy aircraft and to direct interception by Marine fighter planes.

Carrying out coordinated air-ground assault and defense battle problems with Marine ground forces was the climax of the strenuous two weeks.

These exercises, bringing into interlocking action all arms of the Marines, proved the proficiency of the Reserves in combat. The expeditious handling of missions and the total destruction delivered under closely simulated con-

ditions prompted MGen. Christian Schilt, AirFMFPac, to give a hearty "Well Done."

Aboard the Esmeralda

Not every day does a sailor have the opportunity of boarding an honest-to-goodness sailing ship and getting a peep into the history of wooden ships and iron men.

Such was recently the good fortune of 40 New Orleans air reservists when Chile's Naval Academy training vessel, the *Esmeralda* came to call.

Good neighbor Chile, whose long coastline is in a part of the world where rough water is usual and calm seas exceptional, must have sturdy, rugged seamen. Therefore, all midshipmen get many months aboard sailing vessels plying far south into the rough waters around Cape Horn.

Impressed by the tremendous size of the sails, the U. S. Reservists were told that in each midshipman's career, he had to "go aloft" in the heaviest weather. "Without a parachute?" was the startled question of one North American.

The Winnerrrr! NAS Minneapolis

Year's end accounting racks up more credits than debits in the Naval Air Reserve Training Command. The credit columns in the ledger have been totaled, records examined, inspections evaluated, and now the winners of the Conway, the Noel Davis, and the

CNATRA trophies have been announced.

Heading the list is NAS MINNEAPOLIS which wrested the Edward Francis Conway Memorial trophy for proficiency from NAS WILLOW GROVE. The Willow Grovers might have seemed to be a lead pipe cinch on the coveted award with their three-year lead in wins—1951, 1952 and 1953. This year they were the runners-up in the competition, while third place honors were captured by NAS SEATTLE.

The Noel Davis trophy, awarded annually to the most efficiently organized air Reserve units by type, goes to 11 air Reserve squadrons attached to seven



BOTH feet in his work, Norfolk airman Laurie prepares an engine mount for VP-861's P2V-3.

abandon ship!" Immediately, 60 men went over the side into the waters of Biscayne Bay.

But this wasn't a naval tragedy. On the contrary, it was an exercise in survival at sea. The 'survivors,' all assigned to NARTU MIAMI, were going through one phase of the survival procedures taught during the 90-day summer training program.

Wearing inflatable life jackets and carrying rubber rafts as they jumped, the seamen had the rafts inflated, and had clambered aboard them in a matter of seconds after hitting the water. They set up their survival gear fast.

Assistance came in the form of the



COAST Guard rescue plane picks up part of NARTU men 'forced to abandon ship', thus successfully ending Operation Survival at Sea.



SOPPING wet, uncomfortable survivors await rescue, while first aid is given the 'wounded'. Oil smeared make satisfactory wounds.

activities of the air Reserve training command.

Willow Grove leads with three winners of this award—VF-933, FASRON-955, and Patrol Photo Squadron-936.

NAS LOS ALAMITOS has two award winners—Air Wing Staff 77 and VA-772.

South Weymouth claims two winners—HU-911 and VS-912.

Four activities have one winning squadron each: NAS DENVER—AGU-711; NARTU LAKEHURST—ZP-751; NAS OLATHE—VR-882; and NAS SEATTLE—AAU-891.

Passing the military, logistic, and training inspections with flying colors, NARTU MIAMI qualifies for the 1954 Chief of Naval Air Training trophy awarded for "showing the greatest improvement in competition with the 27 other activities of the Naval Air Reserve."

Survival at Sea

The word was passed, "All hands



FLANKED by Wagner and NAS exec Cdr. Hoffman, Leland stands in door of plane he flew in.



PADM. I. N. Kiland, Com5, swears his son into Norfolk Air Reserve. NARTU CO is witness.

Miami Coast Guard who supplied small craft and an amphibian.

Promise Kept

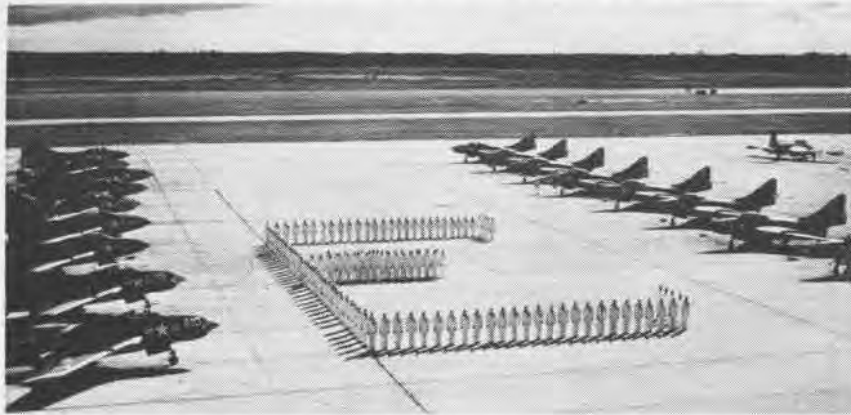
A promise was made last June to the parents of a six-year-old polio victim as he departed for a Denver hospital after a Navy mercy flight. Five months later this promise was fulfilled when Leland Bacus, Jr., toured NAS DENVER with Aviation Pilot A. F. Wagner.

At the time of their last meeting, Leland was a mighty sick lad and barely remembers the hop in the Navy plane, piloted by Chief Wagner.

After his release from the hospital, however, young Bacus remembered his mother telling him Chief Wagner's promise, "When Leland gets well, we'll take him out to the naval air station and really show him some airplanes. Tell him that, will you?"

Like any boy of six, the lad, now recovered, clambered in and out of aircraft and asked the normal number of questions. It was great to be well.

AIRLANT 'E' WINNERS ARE ANNOUNCED



THIS HUGE "E", formed by squadron members of VF-174, represents the achievements of various squadrons, ships and units who were recipients of the coveted AirLant Fleet Battle Efficiency "E".

THERE is nothing like report card day when the report card is resplendent with "E's." Only recently ComAirLant has announced the 1954 honor roll of ships, squadrons and pilots.

Winners of this year's coveted AirLant Battle "E" are the USS *Siboney* (CVE-112) and the USS *Currituck* (AV-7).

In making the award to each of the ships, VAdm. F. W. McMahon, ComAirLant, praised their hard work and team cooperation. Capt. S. J. Lawrence, CO of the *Siboney*, accepted the plaque for his ship. Capt. J. B. Vredenburg, skipper of the *Currituck*, received the award on behalf of his command.

The "Sib" took part in LANTRAEX '54 in the Caribbean and in another big exercise at Onslow Beach, N. C. The "Tuck" was active in Operation *Springboard*, and later in an exercise at Bermuda. She then deployed to England and Italy.

VA-105 has been named the out-

standing attack squadron in the Atlantic Fleet for 1954.

Commanded by LCdr. Roy Reeves, VA-105 was commissioned just a little over two years ago.

This top naval aviation honor and a battle efficiency "E" were awarded for its competitive scores in primary weapons proficiency, aircraft safety, administrative organization and operational readiness.

In an AirLant bombing exercise, the *Mad Dogs* totaled an average error of only 98.1 feet, using the new 3,000-foot minimum recovery altitude.

VA-105 launched its second accident-free year on 19 August and as of that date had logged 7,841.9 accident-free flight hours.

All-weather jet fighter squadron VF-41 has been awarded the AirLant battle efficiency plaque.

This year has been an eventful one for the *Knight Lancers* of VF-41. Based at NAS OCEANA, they were aboard the USS *Bennington* at the time of the May explosion. Inasmuch as the squadron ready room was the center of the explosion area, the loss of one officer and several enlisted men might have been much greater.

Since June, when they retired the last of their F4U *Corsairs*, the *Lancers* have flown F2H-3 *Banshees*. August brought a change of skipper, with Cdr. H. M. Sisk being relieved by Cdr. R. P. Gift.

FOUR VF-172 pilots have won individual "E's" for their marksmanship at Switzerland Target with rockets. Flying F2H *Banshees*, the four *Blue*

Bolts who achieved this individual honor were: Lts. R. V. Raehn, J. E. Barker, Ltjgs. L. P. Racy and P. P. Briska.

Setting the top mark with an average error of only five feet, Lt. Barker led the other three pilots to scores of 18 feet for Rehn, 20 feet for Briska, and 22 feet for Racy.

The squadron, commanded by Cdr. G. G. Estes, Jr., racked up a final score of 76 feet.

While Cdr. Estes and his *Blue Bolts* rejoiced over their good fortune, RAdm. John Perry, COMFAIR JACKSONVILLE was presenting plaques to two squadrons based in that area.

VF-22's *Cavaliers* were presented a battle efficiency "E" for being the best jet attack squadron in the Atlantic Fleet for fiscal 1954. LCdr. Judson Davis, CO of VF-22, accepted the award on behalf of his squadron. This outfit set a new all-time, all-Navy high for combat proficiency and accident-free flight time also.

Cdr. G. H. Sult, CO of VF-174, stepped forward during ceremonies, and Adm. Perry presented him with an "E" in recognition of his squadron's achievement. The *Hell Razors* were honored for being the best jet intercept squadron in the Atlantic Fleet. This squadron is based at NAS CECIL FIELD.

● The propeller crew of VP-40 has developed a special set of tools which is considered much better than can be obtained elsewhere for the Hamilton Standard ME60 propeller now in use on the P5M-1 *Marlin*.



HOVERING over the submarine *Sea Owl*, a Navy HUP-2 picks up VAdm. T. S. Combs, Com6thFlt and prepares to return him to his flagship, USS *Salem*. Adm. Combs had been viewing fleet maneuvers in Med. off Greece.



SPENT 20-mm cannon cases of this deadly weapon tell the story of the hard race for "E".

PAINT LINE SPEEDS JET PRODUCTION



PAINTED PARTS FOR SKYRAY ENTER OVERHEAD DRYING OVEN, THEN GO TO INSPECTION

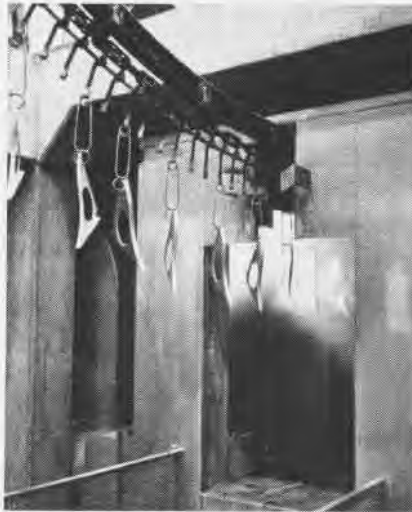
A continuously moving paint line, capable of coating 6,400 Navy jet plane parts an hour, is in operation at the Torrance, Cal. facility of Douglas Aircraft Company. It is described as an electrically-driven, overhead monorail system, nearly half a mile long. Fully automatic, it can be operated at speeds of 10 to 30 feet a minute.

The conveyor dips into five different production locations to receive, without pausing, loadings of newly formed sheet metal airplane parts.

At one point, the conveyor plunges underground into a 378-foot tunnel divided into chambers. Here the parts move through a dozen different automatic phases, such as washing, rinsing, drying and various chemical treatments.

This painting system can accommodate parts from a square inch in size to six feet in length. They are hung on squeeze-type loops suspended from hooks fixed at four-inch intervals along the roller chain of the 2,100-foot steel monorail.

The system employs the principle of "flow" coating. At low pressure, the paint is slushed on the parts with a fan-like action from banks of nozzles on the sides and bottom of the processing chamber. Other methods of coating masses of airplane parts, such as dipping into tanks or spraying at high pressure, sometimes cause the paint to droop or sag, affording less uniform protection. Company engineers say that with the new flow coating, uniform



PARTS ENTER MULTIPLE PROCESS TUNNEL

quality and thickness of finish is attained.

The flow-coater uses up 30 to 40 gallons of zinc chromate primer on the two eight-hour shifts on which it is being operated at present. Agitation necessary in dip coating is supplied in the flow coating process when the paint is pumped from the sump to the nozzle banks.

If a fire should break out, the system automatically stops, all fans and blowers halt, the paint flow turns off, and heat sources are killed. At the same time, CO₂ is discharged into sumps and all closed drains.

In operation, a shop work order is

enclosed in a tube and hung on the conveyor line. Parts are hooked on from any one of the five loading stations by employees. The monorail curves sharply upward as it leaves a loading station to afford work space underneath. Screens are rigged underneath the line to protect personnel working below.

The paint system will be used to process parts for the F4D Skyray jet interceptor and other combat craft now on order.

The flow coat paint system is a product of Industrial Systems, Inc.

Intrepid's New Tour Opens First Flight from Deck is Mercy Hop

NAS NORFOLK—First flight from the reactivated USS *Intrepid* was made recently when a helicopter assigned to HU-2 made the first landing and take-off.

Answering a call for assistance, E. L. Lackey, ADC-AP, flew from NAS NORFOLK to pick up J. U. Jones, FPC, for a flight to the Naval Hospital at Portsmouth where Jones' son lay stricken with polio.

Commanded by Capt. W. T. Easton, the *Intrepid* had been undergoing sea trials 20 miles off Cape Henry when the emergency call was received. The big ship had no planes aboard at the time and requested assistance from Norfolk.

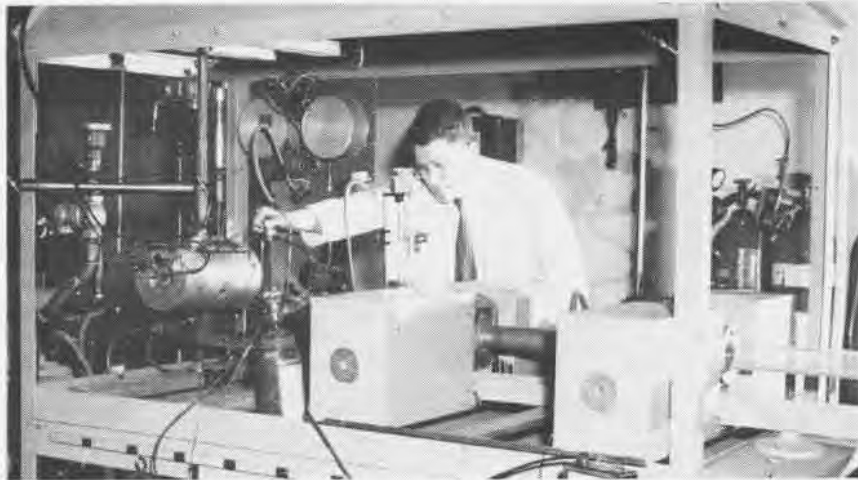
The *Intrepid* turned her bow towards Cape Henry in an effort to close the gap and effect a rapid transfer. Eight minutes after Lackey set the HUP-3 down on deck, he and Jones were airborne and on their way to the hospital.

The *Intrepid* was recommissioned June 18, 1954 and assigned to AirLant.



HUP-2 MAKES FIRST FLIGHT FROM CVA-11

SUPERSONIC MISSILE HEATING UNDER TEST



AT HYPERSONIC Free Flight Range, Dr. Robert N. Schwartz, physicist, shows operation of the control system by which nylon balls are fired into heavy gases up to 20 times speed of sound.

OUT AT THE U. S. Naval Ordnance Laboratory, White Oak, Md., in the basement of Building 20 is, so far as is known, the only true Hypersonic Free Flight Range in operation anywhere. It is a facility of the Hyperballistic Division.

Here scientists are laying the groundwork for studying the temperature conditions of missiles in free flight. Missile heating is becoming an increasingly important problem as missiles go at higher speeds than ever before. Scientists at the Free Flight Range deal in Mach numbers up to 20 and in temperatures hotter than the face of the sun.

There are practical questions that must be answered. Here's one: Under given conditions, how, when and where may missiles burn up before reaching their objective? To answer this, scientists must first obtain data on the temperatures at the skin of a missile. From that can be developed ways of controlling temperatures inside a missile.

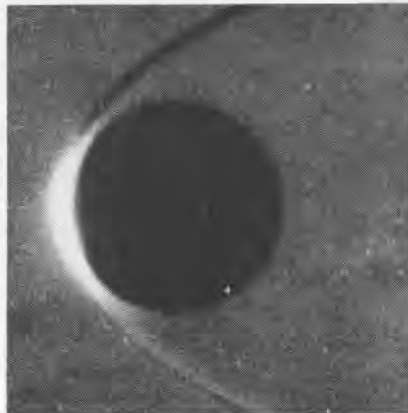
The first answer involves study of the form of shockwaves and of the intensity and color of light given off by the air around high speed missiles.

Hypersonic flight conditions are simulated in the range by firing a light missile into heavy gases. The Mach numbers represent the number of times faster than sound that the missile travels through the gas. The heavier the gas, the lower is the speed of sound and the higher the Mach number.

More important in the work of the

Range, however, are the high temperatures obtained because the heavier the gas, the more difficult it is for the missile to shove it out of the way without heating it. The behavior of the molecules of gas passing through a strong shock wave is being studied with special attention as to how this behavior differs from the response of molecules of an ideal gas.

Once several gases have been thoroughly studied and compared, there will be a foundation for research into the behavior of gases making up the atmosphere in which missiles travel. As air is 75% nitrogen, later studies, looking toward solution of the problems of heat transfer and missile cooling, will be concerned with this gas.



A SMALL nylon sphere is travelling into gas (xenon) at 15 times the speed of sound. Note natural luminosity of gas at fore of sphere.

So the Hypersonic Free Flight Range has a research job requiring much time and endless patience. Sometimes, it means a never-ending repetition of firing small nylon spheres into a long glass tube at 10,500 feet per second, getting pictures timed at 1/100,000th of a second and analyzing what they show. But no matter how much repetition is needed, the task goes on.

PHOTOGRAPHING missiles moving at speeds in excess of 10,000 feet per second by a technique which "stops" the missiles completely on the photographic plate is one of the more remarkable achievements of the Free Flight Range.

At that speed, a missile moves one-eighth of an inch in a millionth of a second. The "missile" is a nylon ball bearing only one-quarter of an inch in diameter. The luminosity from the flight of the missiles is so intense that special steps have to be taken to prevent blurring the shadowgram type of picture used by the Range.

Measurements of temperatures up to 20,000 degrees absolute are possible only through knowledge of the nature of the luminosity of the gases as indicated in pictures. The various spectral colors in the light are not only the most accurate coders of atoms, each atom and each molecule having its own code, but the intensity also tells the story of the state of the atoms and molecules.

Cachet Honors Lakehurst Three-Color Cover Depicts Station

The 30th Anniversary of the nation's first international airport was commemorated on Armistice (Veterans') Day this year by the issuance of a three-color postal cachet by the Ocean County Stamp Club of New Jersey.

The new cachet, engraved in red, white and blue, depicts the historic first lighter-than-airship hangar at Lakehurst for which the station is internationally known. It also shows the rigid airship, USS *Los Angeles*, in flight and an early military heavier-than-air plane.

NAS LAKEHURST operated a heavier-than-air landing field strip and pioneered lighter-than-air world flight service as early as 1924, making it the nation's first international airport.

Martin P5M-2 Joins Fleet Five Undergoing Tests at NATC

Two VP-31 pilots, Lts. Nick Vagianos and H. E. Patterson, have made the first delivery of Martin's new P5M-2 *Marlin* to the West Coast for assignment to Fleet units.

Destined to replace the outmoded PBM *Mariner*, the P5M-2 will also replace P5M-1 *Marlins* which are going into overhaul. The *Mariner* will eventually be assigned to the training commands and will serve as reserve aircraft.

Five of the new planes are at NATC PATUXENT RIVER undergoing extensive test and evaluation. Incorporating the "T" tail, which keeps the tail out of the prop stream and salt water, the P5M-2 is powered by turbo-compound Wright R-3350-32M *Cyclone* engines.

The Atlantic Fleet's VP-34 and the Pacific Fleet's VP-47 and VP-50 will be



HULL PERMITS TAKE-OFF IN HEAVIER SEAS

the first squadrons to be assigned this new patrol plane. VP-47 and VP-50 have been flying PBM5-2's.

Traffic Warning Program PA System Bares 'Take Heed, Bud'

Capt. G. B. T. Ribble, Senior Medical Officer of MCAS CHERRY POINT, and a member of the local safety council, has inaugurated a new safety device aimed directly at the auto driver.

The thought-provoking mechanism is a tape recording and amplifier which broadcasts safety messages over a loud-speaker to auto owners driving off the station during the rush hours in the evening. The speaker is situated at the main gate.

The safety council decided that since the device had been so successful at NAS PENSACOLA and NAS MEMPHIS, it would work at Cherry Point. A special system of winding the tape makes the reel continuous. The messages do not exceed two minutes.

INGENUITY SPEEDS FUEL TANK CHECK



CPO GRIES SHOWS LT. GAMMILL, VF-172'S MAINTENANCE OFFICER, HIS INSPECTION DEVICE

FAIRFAX—Ralph A. Gries, aviation structural mechanic chief, will long be remembered by VF-172's maintenance shop and the Navy's Comptroller General because of what he did with five dollars worth of odds and ends.

It all began when Lt. J. L. Gammill, maintenance officer, and the members of VF-172's maintenance department got "fed up" with the time-consuming job of checking their F2H *Banshee* fuel cells for deterioration. The job had to be done for at least two of the squadron's planes every week.

Checking the fuel cells did not take very long, nor was it a very hard job. But getting to the fuel cells to begin the inspection was what took time.

Before the cells could be inspected, the canopy and five metal plates the size of the top of small desks—part of the plane's outer shell—had to be removed. Then some inner plates, a maze of electrical wires and hydraulic lines, and last of all the tops of the fuel cells themselves had to be dealt with. With no unexpected trouble, the job could be done by five men in 12 hours.

Chief Gries and his maintenance crews started experimenting. Gries found that by removing the fuel pump—located at the bottom of each of the fuel cells—a good view of the inside of the cells could be obtained with the assistance of a flashlight.

This method was simple and required much less time, but it had some drawbacks. The inside of the fuel cells had many baffle plates. These baffles were

there to keep the fuel from sloshing around while the plane was airborne. They also kept Chief Gries from seeing all of the fuel cell's walls. He could see all of the wall space except for small areas on the far side of the baffles.

Someone made a suggestion and after some experimenting, Chief Gries had the answer—a gadget composed of a three-foot piece of one-inch aluminum tubing, a head lamp, a four-square-inch mirror and a small piece of aluminum sheeting.

The men mounted the lamp and the mirror on the aluminum sheeting, adjusting them so that the lamp would always illuminate the area reflected by the mirror. They mounted this combination at an adjustable angle on one end of the aluminum tubing. The lamp's wire was run down the side of the tubing to the other end where the case holding the lamp's four flashlight batteries was fastened.

This did the trick. Every inch of the inside walls could now be subjected to a close inspection under a bright light. No flaw would be overlooked. It also eliminated the wear and breakage.

When the new system was timed, the maintenance department found that one man could do the job in ten hours—less than one-sixth the time it once took five men.

With an average of two planes a week to inspect, this means a savings of more than 100 man-hours a week to the squadron and thousands of dollars a year for taxpayers and the Navy.



AVIATION ORDNANCE

Repair Parts Now in OSO

The supply demand control function of certain repair parts for Aviation Ordnance (Class 194) was transferred from the Bureau of Ordnance to the Ordnance Supply Office, Mechanicsburg, Pa., on 1 October 1954. All inventory management of these items is to be administered in accordance with OSO procedures.

Stock numbers for the most part will reflect only a cognizance symbol change—"J" to "Z"—and the structure of the Aviation Ordnance distribution system will be maintained. In order to effect this the following additions to the Ordnance distributive organization have been made:

● Effective 1 October 1954, the NAS CORPUS CHRISTI, PENSACOLA, QUONSET POINT, MCAS CHERRY POINT, EL TORO, and NASD PHILADELPHIA were added as primary reporting activities in the Ordnance distributive system for "Z" cognizance aviation ordnance material.

● Effective 1 October 1954, OSD OAKLAND was established as the West Coast Distribution Point in lieu of the ASD OAKLAND for "Z" cognizance aviation ordnance material listed in enclosure 2 of OSO Instruction 4440.11A of 2 September 1954.

● Aviation Ordnance Activities are reclassified—previous designations are shown in parentheses—as follows: Reserve Stock Point (Reserve Storage Point), Distribution Point (Ready Issue Point), Primary Stock Point (Major Supply Point), Secondary Stock Point (Minor Supply Point), and Satellite (Satellite).

Turn in ASB-1 Containers!

Containers for components of the bomb director set AN/ASB-1 are reusable. BuORD requests operating activities to turn in the empty containers as soon as they become available, to the nearest Naval Air Station Supply Department for stocking under the appropriate stock number.

Supply activities should report inventories quarterly on NAVORD Form 148A or B in accordance with BuORD reporting instructions.

● NAS JACKSONVILLE—VF-62, the *Gladiators*, has been dubbed the most safety-conscious squadron on the entire east coast by AirLant's Aviation Safety Bulletin. VF-62 flew 673 flight hours during a recent month without a single accident.

SAVE THOSE EXPENSIVE PLUG-IN UNITS!

THE PLUG-IN units for the Computer Mk 86 for the aircraft fire control system Mk 16 are very costly, and every effort must be extended to salvage all unserviceable units. BuORD has a special routine that should be followed.

Disposition and reporting of the items enumerated below, which are on hand in unserviceable condition, are to be turned in by operating activities to the nearest Naval Air Station Supply

Department for Class 265. All supply activities are to report the quantities of unserviceable items on hand to BuORD, on NAVORD Form 148C, Class 265 Aviation Ordnance Material Quarterly Report. For further information, refer to NAVORD Instruction 8610.11.

When any of the following are found to be unserviceable, they are to be salvaged and reported to BuORD as Class 265 material:

Nomenclature	Stock Number	Drawing Number
Power Transformer Unit	J942-BUO-814313	814313
Voltage Reference Unit	J942-BUO-875575	875575
Velocity Computer	J942-BUO-875593	875593
Output Unit	J942-BUO-875601	875601
Power Supply	J942-BUO-1346198	1346198
Phase Balance Computer, Plug-in Units (INV-MULTI-Inverter and Multiplier functions)	J942-C-3600	875738
Phase Balance Computer, Plug-in Units (INV-Inverter function only)	J942-C-3600-10	875738
Phase Balance Computer, Plug-in Units (Multi-Multiplier function only)	J942-C-3600-20	875738
Computer Transformer	J942-BUO-875795	875795



THREE of the 150 new ensigns assigned to Jacksonville based squadrons on TAD plug their ears in anticipation of the explosion that follows an ejection. Ens. J. D. Elliott, in the seat, along with the other new pilots, will undergo a familiarization course before being assigned to Pensacola for flight training. J. D. Gartin, TD3, instructs Ens.'s F. S. Mudgett, R. J. Burnell, D. H. Gehring and Elliot. The new ensigns are Naval Academy graduates and NROTC men.

A/S Rescue Buoy Devised

Woods Hole Oceanographic Institution has developed the Air-Sea-Rescue Drift Buoy, to aid in locating survivors of naval aircraft and vessels abandoned at sea. Work was done under an ONR contract.

With modern devices, survivors of disasters at sea can transmit the location of the accident. But winds and currents bear the emergency craft away from the accident site before the rescue ships appear. Detailed, on-the-spot broadcasts of weather conditions, winds and currents would enable modern electronic wizards to compute drift and give the locations of the survival craft at any given time.

Accordingly, Woods Hole scientists began to develop the ASR drift buoy. Equipped with a pneumatic float, the buoy has almost exactly the same rate and direction of drift as standard U. S. Navy aircraft rafts when normally loaded and retarded by sea anchor. The buoy, released by the distressed aircraft, on impact with the water, displays a dye marker and a small, incandescent light. This enables raftsmen to locate the buoy and take it in tow.

Some survivors may be unable to secure and retrieve the buoy to their rafts. Since the buoy's rate and direction of drift are almost the same as that of the emergency craft, the searchers, once they had located the buoy, would be within a few miles of the survivors and rescue could be effected.

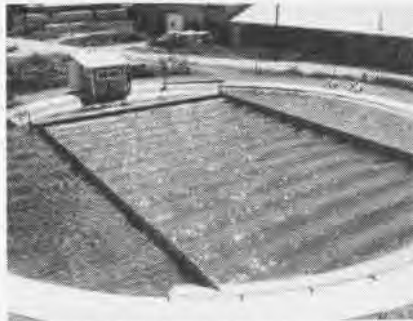
When mechanically or manually launched, the ASR drift buoy will automatically transmit keyed, tone-modulated signals on the UHF guard for a period exceeding 60 hours. Development of the droppable, buoyant radio beacon, capable of operating in extreme cold or heat, began in 1951.

Alameda Runway Extended

Work has begun on an extension to a runway at NAS ALAMEDA under a \$339,194 contract with an Oakland construction firm.

The 800-foot extension to Runway 13-31 will bring its total length to 8,000 feet. The contract calls for 12 inches of sub-base, eight inches of aggregate base course and six inches of asphaltic concrete.

The runway now accommodates the Navy equivalents of the *Super Constellation* and the Douglas DC-6, the R6B and the Lockheed R7V.



CIRCULAR TANK USED FOR SEA STATE STUDY

Circular Model Tank Used

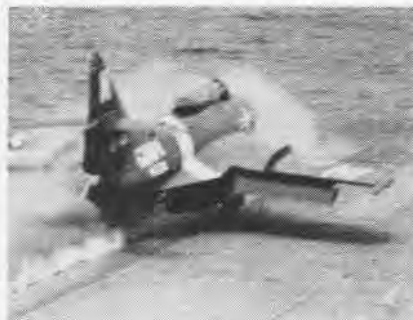
Colorado A&M College is far from salt water, and high above sea level, yet at its hydraulic laboratory, engineers are studying the behavior of sea-planes in simple and complex seas. This work is being done under Navy contracts, according to Eugene Handler, BUAEER engineer.

Towing tanks have been the conventional method of predicting rough water characteristics, but out in Colorado, Dr. Maurice Albertson, head of Fluid Mechanics Research, and his staff are doing something different. They are using a circular tank.

They reasoned that the pool used for hydrodynamic projects should simulate as nearly as possible the conditions on open seas. A wave machine has been installed and the model towing apparatus may be placed anywhere on the pool periphery.

A second wave machine is to be installed, so that the two machines operating simultaneously can create two intersecting wave trains, thus reproducing a "complex sea state."

Motion pictures record the passage of the model through various sea conditions, and the film can then be viewed to determine the characteristics of yaw, pitch, rise and roll.



TYPICAL steam catapult instrument take-off is experienced by a pilot from VF-24 during tests of the new apparatus on board attack carrier, USS *Essex*, off San Diego.

Ideas Bring Cash Awards

Back in 1949 three men put their heads together and came up with an idea which they thought would save NAS ALAMEDA a few hundred dollars a year.

Their idea was submitted as a Beneficial Suggestion to the air station that same year, and now these three civilian employees are beginning to reap their rewards.

Virgil R. Crumpacker, John Chatten, and Lester Fenstermaker designed a tool to install quickly and accurately wrist pins in rotary engine connecting rods.

Before this tool was put into use at air stations at Alameda, Corpus Christi, and MacClellan AF Base, old fashioned methods for installing wrist pins were costing the government money.

At Alameda alone, \$750 in savings was realized during the first year the tool was used. Today that savings amounts to almost \$10,000 yearly plus an 80% savings in man-hours.

In addition to the cash awards to the three designers, the Navy Department is obtaining a patent in their name to safeguard their commercial interests.

Special ADF in Banshee

A new automatic direction finder gear, the Lear ADF-14B, has been installed in a *Banshee* for evaluation by VC-4, a Navy night-fighter unit based at NAS ATLANTIC CITY.

A unique feature of the installation is a flush-mounted 12" loop in the belly of the airplane forward of the arrestor hook. The loop is mounted on the back of a fibre-glass-plastic hinged door, which replaces a standard metal access door. A metal case shields the loop from the other electrical equipment in the fuselage.

Electrical connections are accomplished with two standard AN connectors. Installation time is a matter of minutes, and inspection can readily be made simply by swinging down the door and complete unit. In addition, a standard 7" loop is mounted under the cockpit aft of pilot's seat.

To reduce static in the existing flush sense antenna on the top of the canopy, the canopy around the antenna is grounded to the airframe with strips of rubber-base, high graphite content paint, and the antenna is then tied into the direction finding system.

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LETTERS

SIRS:

The *Red Devils* jet squadron has set a new flight record at MCAS KENEON BAY, T. H., where it is stationed as an element of the 1st Provisional Marine Air-Ground Task Force.

During August, the squadron flew 1,414 hours in training missions. Piloting the final *Red Devils* plane to land on Aug. 31 was LCol. Donald D. Blue, CO of the unit. In smashing the record, the squadron broke its own previous mark, according to Capt. Walter E. Daniels, operations officer. The previous high was set in June when the squadron totalled 1,201 hours for the month.

An average of 16 jet aircraft were kept in commission during August, and 34 pilots took part in the record-smashing effort.

The *Devils'* mark betters all previous records of jet flying hours set by elements of MAG-13 since its arrival here in February, 1952.

JACK LEWIS, CAPT. USMCR

SIRS:

I'm well down the list of recipients who receive the lone copy of NANews here at McDonnell Aircraft Corporation. For that reason, I'm forwarding this belated dispute to the claim in the November 1953 issue that Lt. Cooke in an F2H-3 [was] the first to tow a target off the deck of a carrier.

While aboard the *USS Coral Sea* in November 1950 in Mediterranean waters as a MAC Field Service Representative, I witnessed several catapult launches of F2H-2 *Banshees*. Cdr. W. N. Leonard, Commanding Officer of VF-171, was one of the pilots to perform the feat.

This was fully two years before the F2H-3 joined the fleet. It is also of interest to note that the two *Banshees* were not originally equipped to tow a target, and the rig used at that time was designed and installed by VF-171.

R. V. DYCKMAN

IFR-IQ?

According to the All Weather Flight School, the answer is "D".
Ref: CAR Part 60, Para. 60.67.

SIRS:

All members of FAWTUPac, Det. A, enjoyed reading about the activities of the Instrument Flight Training Unit of FASRON-5 in the July issue and welcome them into the instrument instruction field.

FasRon-5 IFTU is going to instruct jet students in doing acrobatics such as the roll, wing-over, split S, and loop while the student is under the hood "on instruments". We may be able to help them make this addition to their syllabus for this type of training has been a reality in this unit for over two and a half years. These maneuvers are referred to as "Confidence Maneuvers".

In the spring of 1953 this unit made a movie showing the instrument presentation during the various maneuvers by mounting a camera to cover the front seat instrument panel of a TV-2.

These "Confidence Maneuvers" are taught in addition to "Unusual Attitudes." The value of this instruction is emphasized each time one of the graduates of the FAWTUPac jet course returns to tell of being subjected to violent buffeting and turbulence, losing control of the aircraft in a thunderstorm, or being put into dangerous unusual attitudes and utilizing the procedures taught by FAWTUPac to make a safe recovery.

LT. JOHN RALSTON, JR. USN

SIRS:

What happened in the skies over El Centro, Calif., on 23 July probably established a record insofar as coincidence is concerned. At least, NAF LITCHEFIELD PARK AP's Joe Ross and Mickey Walker thought so.

They were just returning from a logistics flight to NAS SAN DIEGO and had called to the tower that Navy 7288 was at 8,000 feet. The voice which came over the air immediately thereafter sounded much like an echo, for it said that Air Force 7288 was at 9,000 feet. The tower said something like "Huh?"

But they were ships passing in the day rather than in the night; one plane (Air Force) was going west, and one plane (Navy) was going east.

JANE G. FISHER, LT.



TANGIERIAN Boy Scouts get the latest word on the performance of the Navy *Cougar* from H. Hugg. ABC of the *USS Midway*. The carrier and her groups are with the Sixth Fleet.

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● PICTURE CREDITS

The Shell Oil Company furnished excellent pictures used in "Kerosene Powers Navy's Sky Warriors."

● THE COVER

The Christmas cover is a reprint of an NANews cover which appeared in December 1945. The drawing was made by Robert Osborn.

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SQUADRON INSIGNIA

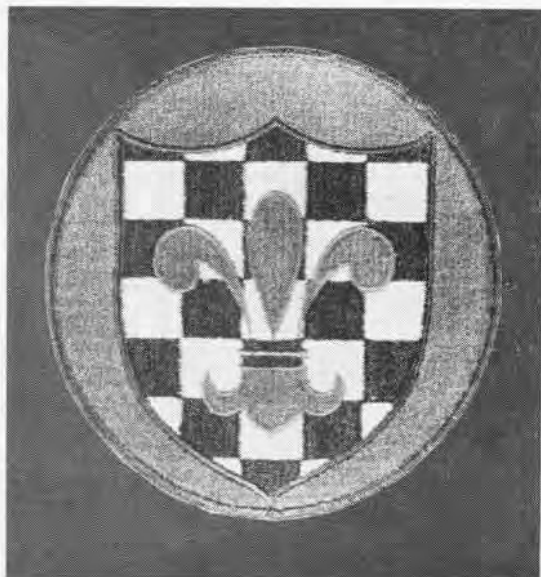
TWO MARINE squadrons vie with two Navy squadrons in the insignia department this month. The black, winged replica of an aerial K-17 camera signifies the mission of VMJ-3, identified by the three stars. "The Black Patch" of VMA-251 is indicative of night attack capabilities, and the bolt of lightning symbolizes surprise, speed and force of the attack. A fleur-de-lis and a checkered shield symbolizes the helicopter blades and tactics used by HS-4 as well as denoting France as the place the first man left the ground in a 'copter. Sea-hawk, bomb, periscope show mission of VP-662.



VMJ-3



VMA-251



HS-4



VP-662

NAVAL AVIATION

NEWS

KEEPING A *Spotlight* ON
THE *Defense* OF FREEDOM

Like a lamplighter of old, a crewman of the USS Oriskany adjusts the ship's flight deck landing lights for night operations in the Sea of Japan. Navy jet pilots are returning home. Your place among these defenders of freedom is waiting for you. Naval Aviation Cadet Training is available to men who want the finest. Opportunity knocks! See your nearest Naval Air Station or Naval Recruiting Station.

