

NAVAL AVIATION

NEWS



46th Year of Publication

JULY 1965

NavWeps No. 00-75R-3





FIGHTING LADY'S 110 CENTURIONS

When the chips are down, every pilot becomes a 'bagger' of carrier landings without even trying. After seven months of intensified Seventh Fleet support missions, USS Yorktown returned in mid-May to her California home port. Only one photo was required to make a capsule report of the carrier's workload: each pilot shown logged at least 100 carrier landings, some hit the 200 mark. CVSG-55 included VS-23, VS-25, HS-4, and units of VMA-223 and VAW-11.



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FORTY-SIXTH YEAR OF PUBLICATION JULY 1965

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■ COVER

The Navy's F-111B made its flight debut on May 18, a week after Secretary of the Navy Nitze hailed the new aircraft as a carrier weapon system that will help insure the carriers' ability to "fulfill their vital roles in the 1970's and 1980's." (See page 11.)

Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35

Published monthly by Chief of Naval Operations and Bureau of Naval Weapons to disseminate data on aircraft training and operations, space technology, missile, rocket and other aviation ordnance developments, aeronautical safety, aircraft design, power plants, aircraft recognition, technical maintenance and overhaul procedures. Send mail to Naval Aviation News, Op-05A5, Navy Department, Washington, D.C. 20360, located at 4703 Munitions Bldg.; telephone Oxtard 62252 or 61755. Annual subscription rate is \$2.50 check or money order (\$1.00 additional for foreign mailing) made payable and sent to Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Single copy is \$.25.



NAVAL AVIATION NEWS

Flight Rations for Sale Fixed Rate Charged after July 1

Effective July 1, 1965, all officers and enlisted crew members receiving a money allowance for food are required to pay for flight meals at a set price. The new requirement, specified by Bureau of Supplies and Accounts Instruction 7333.15, brings the Navy in line with Army and Air Force practices on flight meals. The Navy has been the only service issuing free flight meals to its crewmen.

All enlisted personnel receiving money allowance for food and all officer crew members not on per diem pay \$.40 for a flight meal. Officer crew members on per diem pay \$.85 a meal. Enlisted personnel not receiving money allowance in lieu of subsistence will be issued flight meals free. According to the directive, passengers aboard Navy planes will continue to pay for the flight meals they consume.

Procedures for ordering flight meals remain unchanged with one exception, the flight officer who orders the lunches is responsible for collecting the costs where applicable. The change was ordered by the Secretary of Defense to eliminate what was considered discriminatory practice.

Pacific Barrier Ends Task Seven Years of Surveillance Over

On April 30th, the western extension of the DEW Line came to an end. After seven years of shipboard surveillance and 245,000 hours of airborne radar coverage, the Barrier Force Pacific ceased operation.

Captain M. Scott Young, Jr., Commanding Officer of Airborne Early Warning Barrier Squadron Pacific, piloted the last EC-121K on a track that extends from Midway Island north to the Aleutian Islands of Alaska. Since the beginning of the

barrier and the first flights in July 1958, a total of 20,265 missions have been flown over the North Pacific.

Admiral David L. McDonald, Chief of Naval Operations, praised the officers and men of AEW Barrier Squadron Pacific for their outstanding record in protecting our nation: "I commend you for important tasks exceptionally well done."

In November, the Airborne Early Warning Squadrons 11 and 13, based at NS ARGENTIA, Newfoundland, will complete their mission of barrier vigilance over the Atlantic.

Air Traffic Peaks Studied Heaviest Area is under 5,000 Feet

The busiest slice of sky is the area between 4,000 and 4,999 feet, according to an analysis of peak day instrument air traffic made by the Federal Aviation Agency. This segment of airspace was the most frequently assigned by the FAA's en route air traffic control facilities on their busiest days in fiscal year 1964.

This peak day activity is not the same day for each center and tower exercising en route IFR control, but represents a composite of the busiest days reported by each one.

On the composite peak day, nearly 24,000 IFR (Instrument Flight Rules) flight plans were filed with FAA facilities. Multi-engine piston aircraft (12,500 pounds and over) filed 9,716 IFR flight plans; turbojets, 6,668; multi-engine piston aircraft (under 12,500 pounds), 3,364; turboprops, 2,590; single engine aircraft (four-place and over), 998; single engine (one to three place) 373; and rotorcraft, 153.

Most aircraft (69 per cent) were assigned to low altitudes—up to 14,-



THE T-2B BUCKEYE jet trainer, scheduled for the Naval Air Basic Training Command, is shown returning from its first test flight at Columbus, Ohio. This is the first production model of 46 Buckeyes ordered by the Navy. The North American T-2B will replace the T-2A now in use. The new version has two 1-60 Pratt and Whitney jet engines which will substantially increase the power of the trainer to more than 6,000 pounds of available thrust.



WITH THE ARRIVAL at Da Nang Air Base in May of six Marine UH-1E helicopters and their crews, Marine Observation Squadron Two, commanded by Lieutenant Colonel George F. Bauman, USMC, has a new starter in its Vietnam lineup. These aircraft replace the outdated OH-43D (HOK) observation helicopters previously used. The Hueys execute combat missions involving air observation, target acquisition, command control, reconnaissance and casualty evacuation.

999 feet. Nine per cent were assigned to medium altitudes—15,000 to 23,999 feet—and 19 per cent to flight levels 24,000 feet and over. Ninety-nine per cent of the high level flights were turbojet.

The six busiest FAA air route traffic control centers on the composite peak day were: New York, 1,716 IFR departures; Washington, 1,356; Chicago, 1,341; Fort Worth, 1,117; Los Angeles, 1,076; and Atlanta, 999.

AirLant Units are on Alert Navy Transports Fly D. R. Support

In brushfire war, the ability to provide logistic support becomes a para-

mount necessity. After the outbreak of hostilities in the Dominican Republic in late April, many squadrons along the East Coast were placed on alert and some took part in the action. Among those taking part were Fleet Tactical Support Squadron One (VR-1) and Atlantic Fleet Airborne Early Warning Training Unit (AEWTULant) out of Patuxent River; Air Transport Squadron 22 (VR-22) out of Norfolk.

Utilizing C-130 Hercules and C-121 Constellations, the three squadrons carried food supplies, medical equipment, troops and teams of medical personnel to the island. VR-1 and AEWTULant were under the opera-

tional control of the Second Marine Air Wing at Cherry Point, N. C. Norfolk-based VR-22 flew out of Pope AFB, N. C.

Flying in marginal weather with few navigational aids, the squadrons successfully carried out numerous airlifts of military and humanitarian nature. Most flights to the Dominican Republic terminated at the San Isidro Airport on the southern coast.

The Navy's seagoing forces also answered calls for assistance when the Dominican crisis flared up. An example was the USS *Boxer* (LPH-4); details are on page 34.

Navy Pilots in Space Study NASA to Simulate Lunar Trip

Two Navy pilots are among the nine graduates of the Air Force Aerospace Research Pilot School participating in crew performance studies for manned space flight. The study, conducted by NASA, is taking place at the Martin Company in Baltimore, Md.

Lt. Richard H. Truly and Lt. John L. Finley, both of Edwards AFB, Calif., are part of three-man crews making a simulated seven-day lunar excursion. Each of the crews participated in a five-week training program prior to the mission.

The NASA experiment involves a simulated *Apollo* lunar landing mission utilizing a lunar excursion module. The mission includes all phases of the flight from pre-launch through lunar landing, lunar launch and earth landing. The study, which is a continuation of a similar study made last year, is designed to obtain data on pilot performance in the capsule.



SEASPAR, surface-to-air version of the Sparrow III air-to-air missile, takes off from the USS *Tioga County* (LST-1158) during its first shipboard test. The shot took place in May at the Navy's Pacific

Missile Range. The Naval Missile Center is evaluating the weapon for use on auxiliary ships. The *Seaspar* shown above is believed to be the first missile ever fired from an LST (Landing Ship Tank).



GRAMPAW PETTIBONE

Gear Grabber

A flight of three F-8's was scheduled to participate in an air intercept exercise. The pilots were briefed for a 1400 VFR departure, carrier type rendezvous and simulated instrument recovery. Individual takeoffs at maximum thrust with 1,000-foot intervals were also included in the briefing.

The pilots manned their aircraft. After they had performed routine checks, the flight was cleared to the duty runway. The flight leader took the right side of the runway and the remaining two aircraft lined up in the left echelon. The pilot in the number two position waited until the lead aircraft was almost airborne, then released the brakes and began his roll.

The takeoff appeared normal until the aircraft reached the point of transitioning to flight. While the airplane was still in a flat attitude and just before becoming airborne, the pilot retracted the gear. The landing gear doors contacted the runway and the aircraft immediately assumed a nose-high attitude and rolled slightly to the right. The pilot immediately lowered the nose; both vertical fins and center keel contacted the runway, producing a shower of sparks and a curtain of brilliant yellow flame. After skidding approximately 1,000 feet, the aircraft entered a steep climb to an altitude of 300-400 feet. The pilot lowered the wing during climb and the aircraft seemed to plunge back



toward the runway, but a recovery was made and rendezvous with the leader accomplished.

After climbing to an altitude of 3,000 feet, the flight leader instructed the pilot to lower his gear. All three came down normally with good indications. The flight leader then visually inspected the damaged F-8 and advised the pilot to prepare for an arrested landing.

The wing was raised, fuel dumped and hook lowered for an LSO-moni-

tored field arrestment. A normal mid-field arrested landing was made and after shutdown the pilot unstrapped and left the aircraft.



Grampaw Pettibone says:

Sufferin' catfish! This lad got a real expensive but fortunately non-fatal lesson on the dangers of pullin' up the rollers before the bird decides it wants to fly.

It's hard to tell exactly what this young gent was tryin' to prove, but I don't think there's a doubt in anybody's mind that he's not half as sharp as he thinks he is.

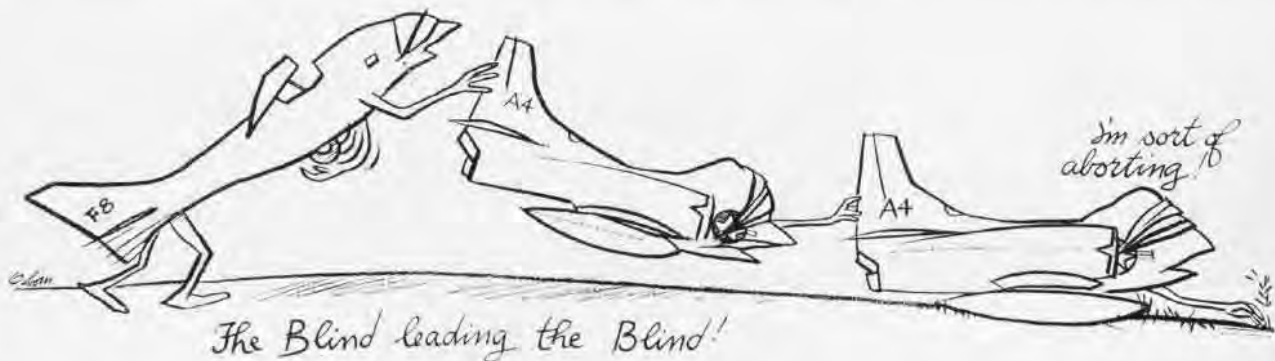
The F-8 NATOPS is mighty clear on procedures and to just plain ignore the good book is downright foolish. Luckily, this lad got away with this stunt without clobberin' himself or bustin' the bird, but he sure got himself into a good position to do both.

If this lad don't straighten out and get with it, some day he's gonna rush out and "buy the farm."

Abort

Two A-4 pilots filed an IFR flight plan, after receiving a weather briefing, for a night flight back to their home field. The section leader briefed his wingman for a section takeoff because visibility was reduced by haze.

Pre-flight, start and taxi were normal. After both pilots copied the IFR clearance, they were cleared to the runway for takeoff. The section leader got an O.K. from his wingman and



im sort of aborting.

The Blind leading the Blind!



Memo from Gramps

In a few weeks now, the winners of the CNO Aviation Safety Awards for fiscal year 1965 will be announced. As the old year fades into history, it appears to me that this is a real good time for all of us connected with Naval Aviation to ask ourselves the question: "Just how much did I contribute to the READINESS of my squadron THROUGH SAFETY?"

Starved S-2

Two young TS-2A pilots on a cross-country training flight departed a Gulf Coast NAS late one afternoon for the return flight to their home air station. Things progressed uneventfully for nearly two and one-half hours and then the port engine began backfiring.

Things evidently became pretty confused about this time, because neither pilot remembers exactly the steps they took for the next few minutes. They do know that a portion of the engine exploded through the cowl before they could get it feathered.

The pilot reported his trouble to the Center and received a clearance and vector for a GCA at a nearby Air Force base.

Just after turning to the assigned heading inbound to the AFB, the copilot noted the power on the starboard engine to be 2000 turns and 32 inches. After the pilots checked the prop control and throttle and found them both full forward, they knew they were losing that engine too. The pilot advised approach control that he had lost both engines. After being told that he was still 15 miles from the AFB, he started look-

ing for a place to put the S-2 down.

The pilot was aware he was near a city by the lights he could see. After lining up to one side of a highway, he selected a darkened area that he figured was a plowed field. Actually it was the city reservoir.

At an airspeed of about 95 knots and an altitude of 100 feet, the landing gear was lowered. On impact the aircraft immediately flipped inverted and water rushed in. With mud and water rapidly filling the cockpit, both pilots released their lap belts and shoulder straps, then made their way to the main entrance hatch. They both stepped out on the wing uninjured and were soon picked up by a helicopter from the AFB.



Grampaw Pettibone says:

Sufferin' catfish! These lads worked like beavers to booby-trap themselves and did a darn good job of it. Material failure of the number 8 cylinder in the port engine caused the emergency, but it sure didn't cause the accident.

Things must have been awfully confused in that cockpit for both lads to ignore the check list completely and trust everything to memory. With 6000 feet to play with and the bad engine safely secured, just what was so pressing that the emergency check list couldn't be used to insure that things were squared away as they should have been?

These little airplanes are pretty trustworthy beasts, but they'll rebel everytime you shut off that supply of go juice to the power pack. I'll just bet there were a couple of red faces when the accident investigators found the starboard fuel selector in the OFF position. Just wonder if these fellows ever heard this one: "The hurrier I am, the behinder I get."

both aircraft started the takeoff roll.

When the section leader reached a speed of 95 to 100 knots, the canopy left the aircraft. He immediately called, "Aborting takeoff," came around the horn and started braking.

The wingman was concentrating on the lead aircraft to maintain position. After rolling about 2,500 to 3,000 feet, he noticed that he was pulling slightly ahead, so he reduced power to approximately 96%. He soon became aware that the lead aircraft was aborting his takeoff. As he was not sure of his position on the runway, he decided to abort also.

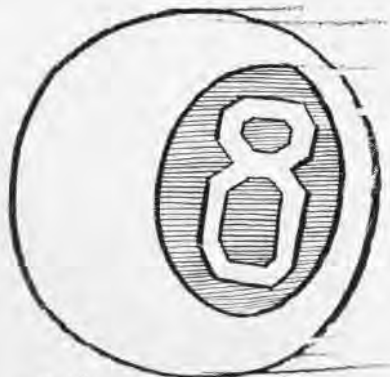
The wingman closed the throttle, dropped the hook and applied maximum braking, but was unable to stop the A-4 on the runway. The aircraft left the over-run, rolled down an embankment, through a barbed wire fence and across a boundary road, shearing the nose gear. The aircraft finally stopped with the nose and probe embedded in an embankment on the opposite side of the road. The pilot abandoned the burning aircraft uninjured and the crash crew quickly extinguished the fire.



Grampaw Pettibone says:

Great jumpin' Jehosaphat! There's no way to take the monkey off the wingman's back for bustin' up the bird, but the section leader sure gets a big assist.

The flight leader elected to lead a section takeoff at night, in marginal weather, with a weak radio, without properly briefing his wingman. Now, that's really askin' for it.

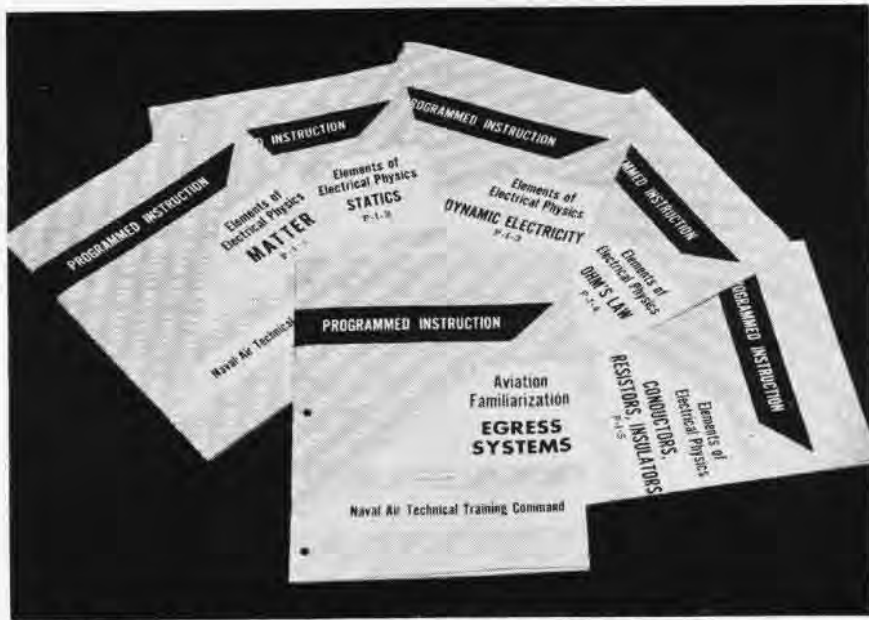


Polorn



A NEW WAY: PROGRAMMED INSTRUCTION

By Fred W. McClung, Jr.
Senior Chief Journalist



THE BEGINNING of Programmed Instruction in the Naval Air Technical Training Command was marked by the regular use of these booklets. Other courses are being similarly developed.

WE STRIVE to give the very best training in the shortest possible time—and we will use anything and everything feasible that can assist us in accomplishing that goal.” Thus Rear Admiral Allen Smith, Jr., the Chief of Naval Air Technical Training, sums up the philosophy that has brought about the introduction of a revolutionary new concept of teaching called Programmed Instruction into his command’s training efforts.

After two years of active investigation, research, evaluation, and preparation, the Naval Air Technical Training Command’s first self-developed programmed instruction came into regular use on December 7, 1964.

The first programmed course material, consisting of five booklets dealing with “Elements of Electrical Physics,” was tailored to the needs of students in the first week of the 19-week Avionics (Aviation Electronics) Fundamentals Course (Class A) at Memphis. The nine hours of programming replaced 13 hours of conventional study.

A programmed presentation on “Egress Systems” (aircraft ejection seats) for students in the two-week Aviation Familiarization Course (Class P) was next to go into regular use. This one-hour program, replaced 2½ hours of conventional instruction.

An additional 1,000 hours of conventional instruction, now in use throughout the Naval Air Technical

Training Command (NATechTra-Com), will be replaced with programmed instruction by the end of 1966.

All the programmed instruction falls into the self-developed category. The job of “programming” these lessons is divided among the command’s 14 teams (14 civilians and 56 military personnel) of programmers.

The training materials being turned out by these teams are typical of an exciting new approach to teaching that combines new learning hypotheses, recently developed in psychology laboratories, with educational principles that are as old as mankind.

This new method of teaching—often referred to as automated learning, teaching machines, programmed instruction, etc.—is based on a very important old educational truth. “Give me a log hut, with only a simple bench, Mark Hopkins on one end and I on the other,” said James A. Garfield, “and you may have all the buildings, apparatus and libraries without him.”

Congressman Garfield, later the 20th President of the U.S., was speaking to the Williams College Alumni in New York on December 28, 1871. In stressing the value of a good teacher, he was also illustrating the ideal teaching/learning situation—the tutorial (1:1) method of instruction.

In recent times, the expense of tutored instruction has limited it to

very special situations, such as remedial needs. Innumerable efforts have been made by educators during this century to restore some form of tutorial instruction, or to regain some advantages of the method. But success was limited until the mid-1920’s.

IN 1926 AND 1927, research papers by an educational psychologist, Dr. Sidney L. Pressey of Ohio State University, reported some fascinating facts about “teaching machines.” Although Dr. Pressey had originally conceived and built his machines for testing, he soon learned that they could also “teach.” He reported that they were especially good in presenting informational and drill material, and they obviously provided some tutorial benefits. One of Dr. Pressey’s machines provided learning reinforcement through “rewarding” a number of successive, correct student responses with a piece of candy.

In 1954, a research paper, entitled “The Science of Learning and the Art of Teaching,” by Prof. B. F. Skinner, a Harvard University experimental psychologist, initiated a great surge of interest in this new approach to teaching and learning.

In essence, Dr. Skinner had proved that pigeons and other animals could be taught to perform difficult, unorthodox acts through a system of stimulus, response and reward. His



MOMENT OF TRUTH arrives when C. J. Burkett, AMC, tries out a lesson on magnetism.



THE SIMPLE teaching machine method of presenting programmed instruction is explained to students in the Instructional Programmer Course by Master Chief TraDeeman E. M. Brown.

amazing pigeons played ping pong, danced, and depressed buttons in a specified manner after a learning period in his "Skinner-boxes."

Dr. Skinner then related his research findings to "mechanical and electrical" teaching devices. Serious research at Harvard was intensified and Dr. Skinner and his associates made many more important research reports before the end of the 1950's.

Dr. Pressey and his students were also still hard at work on the developments in this approach to teaching. A large portion of the work of Dr. Pressey and his students was sponsored by the U. S. Navy. Some of Dr. Skinner's early work was financed by the Navy's Office of Naval Research and the U.S. Army-sponsored Human Resources Research Office of the George Washington University.

Dr. Norman Crowder developed an "intrinsic" programming technique

from his work on training problems for the U. S. Air Force. In addition to their other important accomplishments, Dr. Skinner and Dr. Crowder are recognized as the authors of the two present day basic programming techniques which followed the pioneer work of Dr. Pressey.

Dr. Skinner's "errorless" programming technique is best known as "Linear Programming" or "Constructed Response Programming." Dr. Crowder's intrinsic programming—a multiple choice answer system that makes good use of errors—is better known as "Branching." Although there are many other styles of programming—and new ones are being added to the list—most of them are variations of the Linear or Branching technique.

The active interest of the armed forces in this new area of research was not confined to the last decade, how-

ever. The Navy, for instance, had obtained one of Dr. Pressey's early machines for research and evaluation in the area of self-instruction.

During WW II, the Navy's famous Automatic Rater or Self-Rater was a very popular method of teaching such subjects as safety during off-duty time in recreation areas. This 18" x 26" x 48" machine weighed 175 pounds. It was electrically powered and used a "question/multiple choice answer" type of instructional format.

After WW II, the Army, Navy and Air Force increased their support of research into the many diverse aspects of teaching and learning. The Korean War stimulated the armed forces to even greater educational research interest.

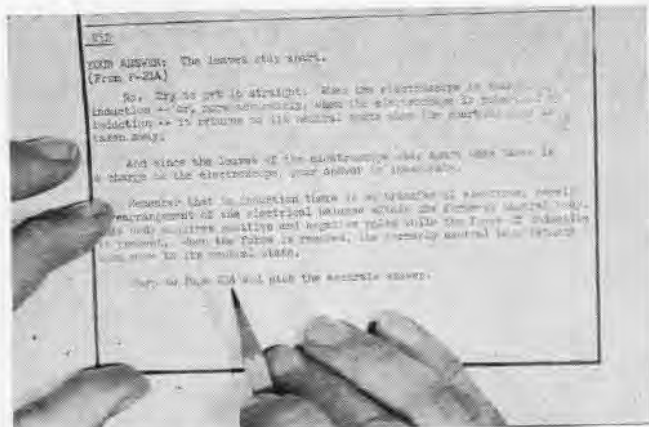
The results of this research activity were the subject of an important million-dollar "Phase I" Air Force study in the early 1960's. During this



GUNNERY SERGEANT M. R. Peters, Memphis programmer, hands out lessons in atomic structure and static electricity to validate the course.



BEFORE STARTING a programmed lesson on "Dynamic Electricity," J. C. Hall, AE2, makes sure students understand introduction to text.



WHEN STUDENT finds he selected the wrong answer, he is referred back to original "frame" to make new response (select another answer).



ON THE BASIS of his individual experience, Sgt. J.R. Cooper provides expert interpretation on a programmed lesson in Navy "Egress Systems."

study, the Air Force developed the philosophy, procedures and techniques necessary to use effectively Programmed Instruction in their Air Training Command. They also proved it was possible to train their own personnel to do the programming.

The Chief of Naval Air Technical Training and his staff, who had been closely following the development of Programmed Instruction, acted on the Air Force "breakthrough."

IN AUGUST of 1963, the Chief of Naval Operations approved a plan submitted by CNATechTra to develop an instructional programming capability within the Naval Air Technical Training Command. The Admiral's Staff Training Officer was appointed as Special Project Officer for the implementation of the program.

The primary development, guidance and supervision of the NATechTraCom Programmed Instruction efforts fell to Dr. G. D. Mayo, one of the Special Project Officer's two technical assistants. Dr. Mayo, an educational psychologist who has served on the CNATechTra Staff for 14 years, heads Adm. Smith's Staff Research Division.

With the generous cooperation of the U. S. Air Force's Training Command, a team of NATechTraCom programmers was trained during the Air Force's early follow-up on their "Phase I" project in the fall of 1963. This team was immediately put to work in the Avionics Schools of the Naval Air Technical Training Center at Memphis.

The second NATechTraCom team was trained a few months later at Lackland AF Base in one of the first

classes to complete the Air Force's newly developed course for instructional programmers.

The task of developing a three-week formal Class "C" course (followed by two weeks of special on-the-job supervision) to train all future NATechTraCom programmers was then assigned to this team. The team was made a part of the Training Facilities Division at Memphis.

Initial plans called for four 15-man classes (12 teams) to be trained in the NATechTraCom Instructional Programmer Course. The first class was convened on July 6, 1964. The fourth class was graduated on February 19 of this year.

In addition to completing approved training for programmers, NATechTraCom programming team personnel must also be technically competent in the area in which material is to be programmed. They must be graduates of a Navy Instructor Training School



INSTRUCTOR L. J. LeBorgne shows T. J. Amey, AA, Navy's Martin-Baker ejection seat.

and meet other requirements in terms of obligated service, interest and suitability.

The standard organization of a NATechTraCom programming team is one civil service educational specialist and four Navy and/or Marine Corps enlisted personnel.

The Naval Air Technical Training Command now has nine programming teams divided among the large training centers at Memphis (five teams), Jacksonville (two teams) and Glynco, Brunswick, Ga., (two teams), and three teams divided among the smaller training units at Pensacola, Philadelphia and Lakehurst. Two additional teams are assigned to the Memphis headquarters of the far-flung Naval Air Maintenance Training Group. These teams follow essentially the same pattern in developing material.

Feasibility studies first determine whether or not the course material under consideration should be programmed. Then approval is obtained from CNATechTra. Objectives for the programmed material and a "criterion" test for determining accomplishment of the objectives are first prepared.

Then the programmers start writing the course, drawing upon conventional material and reference works. Additional assistance is provided by "course material experts" assigned to ensure highest technical quality and to represent the course instructors.

When the initial draft of the programmed material has been approved by the appropriate course training officer, the student tryouts begin. First the program is tried on small groups of students—about three to

six. Then it is tried on 20 to 50 students at a time.

CNA TechTra's goal, in program validation, is for 90% of the students to achieve 90% of the lesson objectives, as measured by the criterion test. To insure program quality further, the lessons are validated in inter-related segments, requiring an average of two hours for the students to complete, and are successfully validated (achieve the 90/90 goal) with at least two 50-student groups.

Following each tryout, the program is carefully edited and revised in a "tailoring" process that shapes it closely to the characteristics of the students it will be teaching.

NATechTraCom programmers use

method which takes advantage of differences in individual capabilities and knowledge. Its frames of information are much larger than linear frames—usually one to three paragraphs in length—and they are usually written in a freer narrative style, with multiple choice responses.

The next frame of information in a branching program depends upon the student's response. If his responses are always the correct ones, he quickly moves through the minimum number of frames in the program. But when he selects an incorrect answer, he is directed to a frame (or frames) to correct and supplement his understanding of that portion of the material.

Regardless of the technique used,

the routine presentation of basic material. Teachers can give the attention to the slow and fast student minorities that those groups must have for effective learning.

Teachers can now also know in precise, exact terms whether the desired learning has taken place through the criterion exams developed for programmed instruction. These exams spell out in specific terms the behavior or demonstrable knowledge that the student should possess if material has been properly learned.

Programmed instruction can be presented through books, simple machines that might be better termed "mechanical program holders," and complex machines that can make use



R. D. PALMER, AA, gets attention of Instructor J. C. Hall, AT2, in "Dynamic Electricity."



INSTRUCTOR Sgt. L.M. Tackitt gives two students help with their ejection seat lesson.



EXPERT HELP guides the students through the Memphis Instructional Programmer Course.

both the linear and branching techniques, combinations of the two, and other variations, depending upon which is best adapted to the material being presented.

In the linear presentation, the student is led through the lesson in a series of small logical steps. These steps are usually in the form of one or two sentences called "frames." Toward the end of the frame there is a blank or blanks that stimulate the student to "respond" by filling in the missing word(s) or phrase(s) or to answer a question. As soon as the student responds, he moves to the next frame where he is told what the correct response was for the previous frame and is "stimulated" to make another response. Ideally, the linear program should be written so that the student always gives the correct response.

The branching technique is a

programmed instruction has a number of important common characteristics. It presents material in the much sought 1 (teacher): 1 (student) tutorial teaching/learning system, instead of the conventional 1:20, 30, 40, or higher student ratios.

The subject matter, carefully organized into a logical progressive sequence, is broken down into small, discrete segments (frames) that require an active response on the part of the student. The student is then "reinforced" or "enriched" by being told he was correct in his response, by being corrected and/or by being provided with supplemental data.

Each student is also able to progress at his own rate of speed.

Both teachers and students appear to benefit from such instruction.

Experts in this new field emphasize that programmed instruction, in effect, frees classroom teachers from

of such things as microfilm, 35mm slides, motion pictures, tape recordings and electric typewriters.

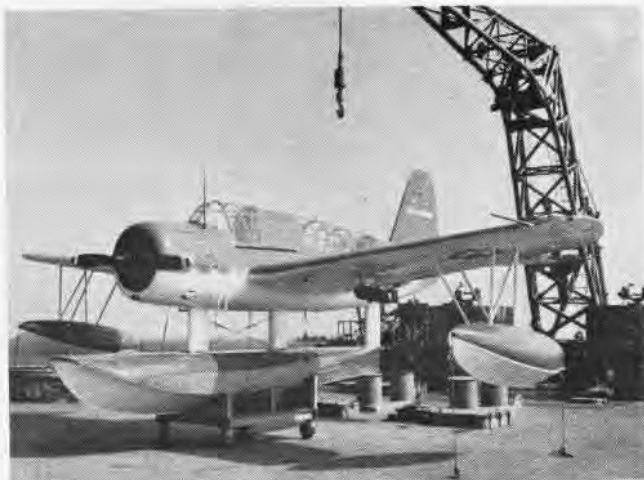
Although initial research was related to machines—which tend to serve the needs of research better than books—the present trend is toward programmed textbooks for the advantages of portability, relative low cost and variety of format.

The field of programmed instruction is still so new and dynamic that today's "experts" hesitate to predict its future in very specific terms. There is not even general agreement—at this time—on whether *programmed* should be spelled with one *m* or two.

But, whatever the future developments, as Admiral Smith pointed out, if they contribute to better quality training and/or shorter training time and are feasible, you can be sure they will soon be in use by the Naval Air-Technical Training Command.



ABOARD THE USS ALABAMA (BB-60), permanently moored in Mobile Bay, is an OS2U Kingfisher which was first delivered to the Navy by Chance Vought on St. Valentine's Day, 1942. Later the aircraft was given to the Mexican Navy. On Thanksgiving Day, 1964, in Mazatlan, Mexico, the plane was presented by the Mexican Navy to the State of Alabama to be placed on board BB-60. To put the aircraft in flyable condition, it had to be completely overhauled. Floats were added



since this particular plane had been equipped with wheels for land operations. The Kingfisher is now displayed with instruments, bombs, rear cockpit machine gun, radio gear and WW II markings. It represents over 1,500 Kingfishers built for the Navy between 1939 and 1942. At left is shown USS Alabama with the Kingfisher on the stern. At right is a close-up of the plane which is an added attraction for visitors who come to the Alabama to tour the old battleship.

Air Medals for VAH-2 Unit Squadron Split on Two Carriers

VAH-2, which is home-based at NAS WHIDBEY ISLAND, has recently operated from two carriers in the Western Pacific. Detachment Mike, under Commander D. E. Brandenburg, was deployed in *Ranger*.

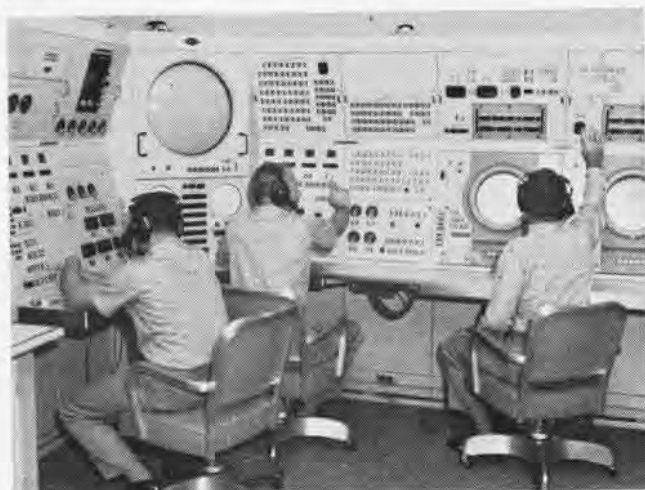
In February 1965, VAH-2 itself deployed to the Western Pacific aboard *Coral Sea*. During this deployment VAH-2 transferred its one millionth pound of aviation fuel to a Carrier

Air Wing 15 airplane. A million pounds of jet fuel transferred in the air by VAH-2 is enough fuel for an automobile to circumnavigate the globe more than 85 times.

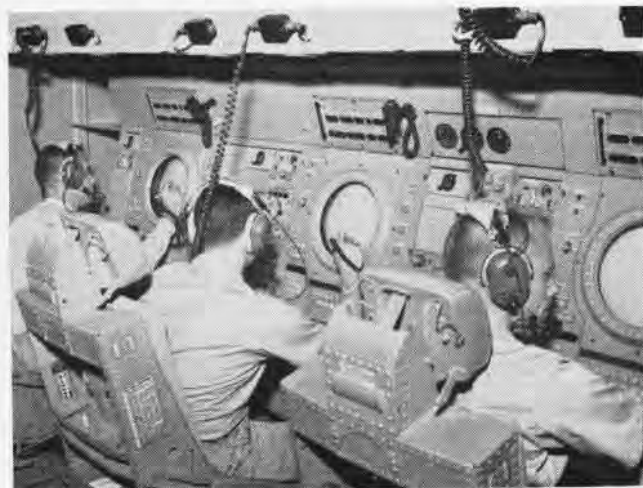
In addition to strikes against North Vietnam, the A-3B's of VAH-2 have been used for high speed cargo, mail, VIP passenger flights, communication relay and weather reconnaissance. The squadron is commanded by Commander R. M. de Lorenzi.

For their efforts during the recent deployment aboard USS *Ranger*, eight

men in Heavy Attack Squadron Two, Detachment Mike, were presented Air Medals by Vice Admiral Paul D. Stroop, ComNavAirPac, during recent ceremonies at WHIDBEY ISLAND. After citing the detachment for its performance during operations in the Vietnam area, Admiral Stroop awarded the medals to the following men: Commander Brandenburg; LCdr. C. D. Ball, III; LCdr. M. H. Watson; LCdr. W. E. Foster; Lt. B. T. Cocotis; Ltjg. I. K. Graham; Ltjg. R. L. Cook and L. D. Rutledge, AQ2.



THE 15F5 TRAINER, an Airborne Tactical Data System (ADTS) mock-up of the E-2A Hawkeye, is in operation at NATTC, Glynnco, Ga. The trainer will be used in conjunction with the ADTS Operations Course for CIC officers to be taught this year. Instructors at panel (left) can initiate and control targets for the students (right). Instructors



and maintenance personnel attended four-week and twelve-week operations and maintenance school before they took over instruction responsibilities from Goodyear Corporation. The system represents a new concept in radar capabilities and exceeds any type of airborne early warning network that is in operational use at the present time.

THE NAVY F-111B MAKES ITS DEBUT



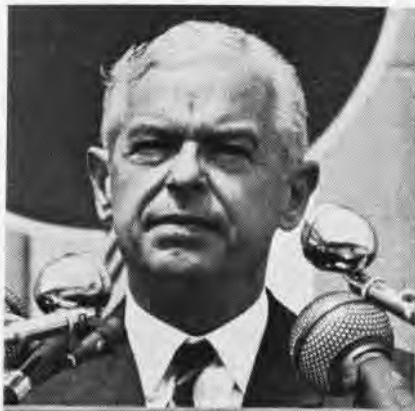
THE F-111B, TWO WEEKS AHEAD OF SCHEDULE, COMPLETED ITS FIRST TEST FLIGHT ONE WEEK AFTER ROLL-OUT CEREMONIES

IN IMPRESSIVE ceremonies at Grumman's Peconic River plant on Long Island, New York, the first Navy F-111B was rolled out on May 11. Hailed by many as a new dimension in the "state of the art," the F-111B began its flight test program seven days later. With an extensive testing program ahead, it is expected that the F-111B will become the Fleet's primary air defense aircraft.

Equipped with the new *Phoenix* missile system, the F-111B is capable of speeds in excess of Mach 2.5 and, at lesser speeds, is transoceanic in range. It has capabilities for air-to-air refueling and can reach any spot in the world in less than one day.

As the keynote speaker, Secretary of the Navy Paul Nitze lauded the strategic values of the carrier striking force and noted that the F-111B would allow the Navy to play an increasingly important role in either limited or cold war situations in any corner of the globe.

A joint Navy-Air Force project from the beginning, the plane was a joint effort of the General Dynamics Corporation and Grumman Aircraft.



SECNAV PAUL NITZE SPOKE AT CEREMONY

The main features of the airplane include variable swept wings and an integrated escape module. The wings may be swept through the full range of 56° while in flight, giving the craft additional lift for takeoff and landings and less drag in supersonic flight.

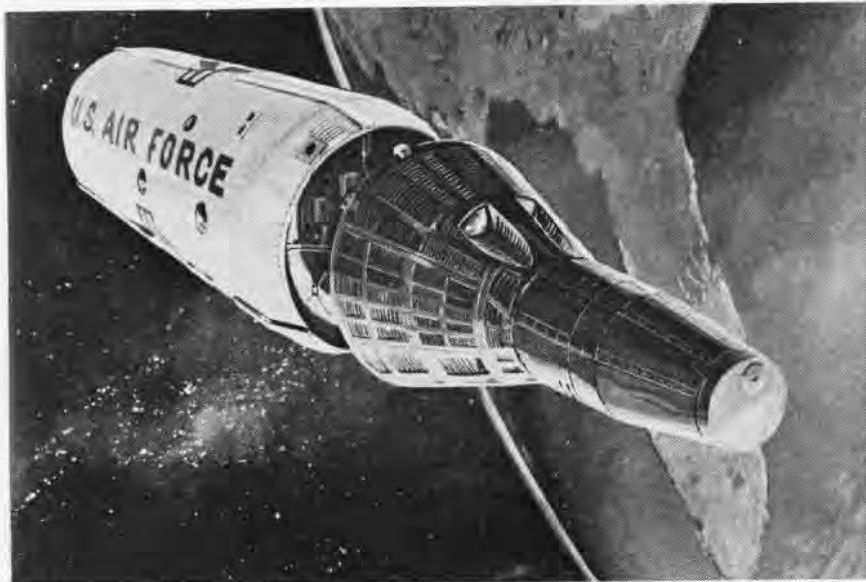
The integrated escape capsule is designed to give the crew a "shirt-sleeve environment" with an additional margin of safety. Upon ejection, the entire capsule is separated from the air-

plane, giving crewmen the advantages of radio communications and protection from the elements while awaiting pickup by SAR units.

Designated originally as the TFX, the F-111 program has been the most expensive aircraft program undertaken by this country. In addition to the General Dynamics/Grumman team, there were two associate contractors, 12 major subcontractors, and nearly 6,500 suppliers in 45 states who took part in the construction of the aircraft.

In late 1963, just after construction began, the Australian government expressed desire to purchase 24 F-111's for the Royal Australian Air Force. In April of this year the British announced their desire to purchase the airplane. In mid-October of 1964, the first F-111A rolled off the production lines and later was flown successfully by the Air Force.

The Navy will use the plane primarily as a fighter-interceptor as a replacement for the F-4 *Phantom*. The U.S. Air Force has announced its plans to use the F-111A both as an interceptor and as a tactical bomber.



ASTRONAUTS ABOARD the Manned Orbiting Laboratory will spend 30 days in the house-trailer size lab attached to the Gemini capsule before returning to the capsule for their return.



VICE ADMIRAL I. J. Galantin, Chief of Naval Material, looks over the MOL simulator.

SKY LAB HAS NAVY APPLICATIONS

OPENING THE DOOR to a new area of operations for the Navy is an active participation in the DOD Manned Orbiting Laboratory (MOL). The purpose of the MOL originally was to determine man's value in performing military space missions. However, the objectives of the program recently were broadened to include:

- (1) Development of technology contributing to improved military capability for manned or unmanned operation.
- (2) Development and demonstration of manned assembly and servicing in orbit of large structures with potential military applications.
- (3) Other manned military space experimentation.

The MOL program is under the direction of the Space Systems Division, Air Force Systems Command.

Navy participation in the program entails providing payloads which will be flown and operated in orbit. They will fall in three categories. Military mission payloads include those equipments or systems which will contribute directly toward enhancing the Navy's mission. The other two categories will be technological and scientific in nature. Of primary concern to the Navy will be the evaluation of payloads enhancing its mission.

Shortly after announcement of the program, the Navy set up a Field Office at the Air Force Space Systems Division. Shortly thereafter, the Bureau of Naval Weapons, designated by CNO as the lead bureau for this program, organized a Navy Experiment Board to establish the Navy program for MOL. The Board considered proposed experiments from over 30 Navy centers and laboratories for the Navy Experiment Program.

Based on the policy that all experiments would be conducted "in house," work was assigned to that lab or center best qualified within the Navy to do the work. Centers included in the MOL program are: Naval Research Laboratory, Naval Air Development Center, Naval Missile Center, Naval Training Devices Center, and several other Navy activities.

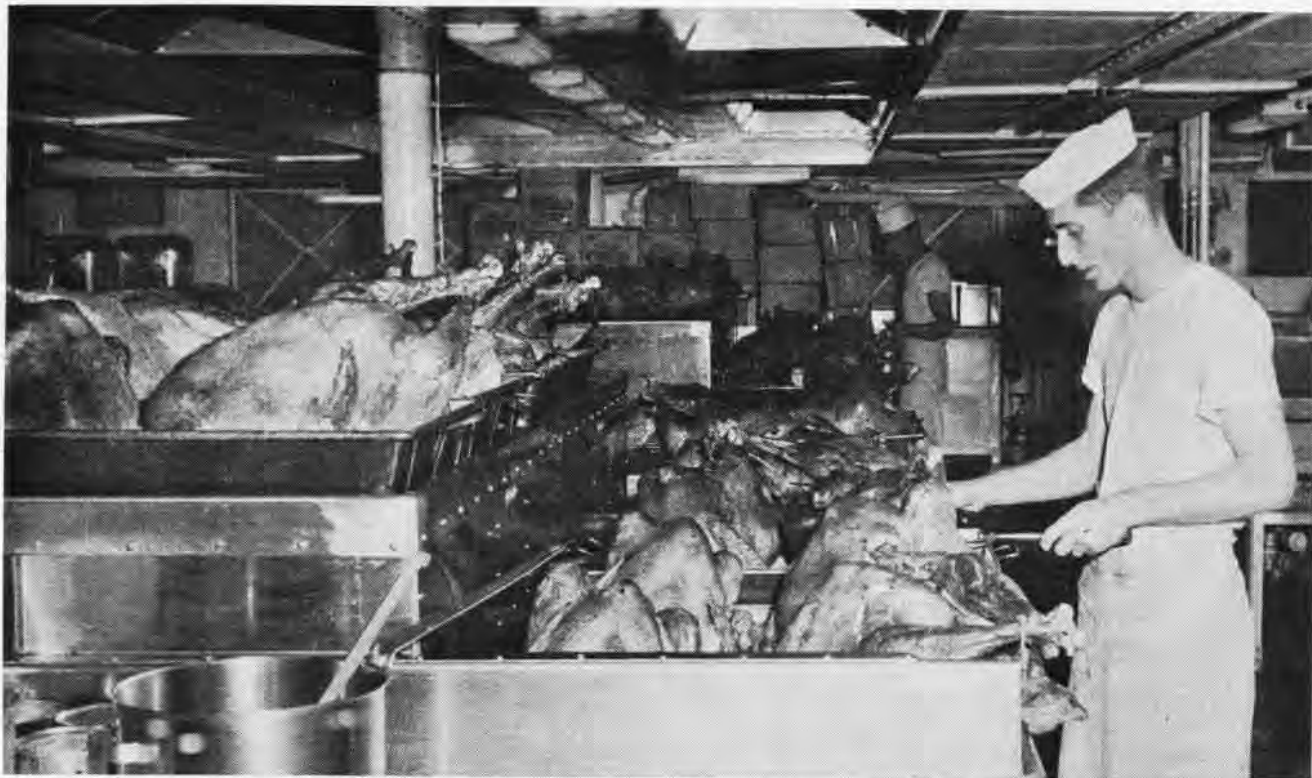
The vehicle system itself will consist of three principal elements: a Titan III launch vehicle, a laboratory vehicle, and a Gemini B spacecraft. The orbiting vehicle is comprised of the lab vehicle and the Gemini B. The lab vehicle itself will be able to provide life support for a two-man crew without resupply for 30 days. Emphasis will be placed on establishing an early military capability.

After the actual launch, the astro-

nauts will remain in the Gemini spacecraft until the orbit is established, then move into the laboratory to operate the mission equipment. Upon the completion of their work, which could last as much as a month, the astronauts will move back into the spacecraft for the return trip to earth. The laboratory will remain in orbit.

Because the MOL requires very capable pilots, special requirements for flight crews have been established. A first requirement of the potential crewman is that he be a graduate of the Aerospace Research Pilot School (ARPS) at Edwards AFB, California. Navy pilots attending ARPS thus will be eligible. Crewmen must also have a scientific or engineering degree with training in such fields as space flight, vehicle systems, and simulated devices and techniques. They must also have experience in the application of theory to real or simulated systems and environments. Final selection will be made by a board of senior officers.

Recovery areas have not been completely defined, but will be selected as required to provide a near once-per-orbit landing capability. Ocean landing areas will be selected on the basis of such factors as accessibility, tracking available from retro-fire to landing, and weather history.



USS RANGER mess cook, R. W. Glassbopper, prepares turkey aboard the carrier during underway operations. The S-2, or Subsistence (Commissary) Division, can make or break a ship's Supply Department as far as crew members are concerned, and food's importance is obvious.

The Modern Aircraft Carrier

THE PROVIDERS IN THE CARRIER NAVY

"The Navy's supply organization supports four great missile-armed fleets, nearly 200 different types of aircraft in a sky armada of over 7000 operational planes, more than 100 types of ships, a classified number of special weapons and their test equipment, and over 200 naval gun mounts and fire control systems. The chore of merely replenishing our ships at sea virtually staggers the imagination, for a typical task force consumes about 300 tons of material daily."—Admiral David L. McDonald, Chief of Naval Operations.

THE SUPPLY DEPARTMENT," notes the *Independence*, "pays you, puts the clothes on your back, cuts your hair, washes your socks, provides you with combs, cameras, and candy. The Supply Department places the proper tool in your hand so that you can install the new part just drawn from Supply's storerooms. You name it: paint, peanuts, or propellers; it's the Supply Department's job to have it for you when you want it.

According to USS *Independence* (CVA-62), "The Supply Department has a mission in life just as all the other departments have. However, there's one small difference. The Supply Department's mission is to enable each of the other departments to carry

By Scot MacDonald

out its particular, assigned mission.

"In order to render the service and support required, we employ more than 500 men (including many TAD) and have cash and materials worth \$27 million. The functions of supply cover such a wide range that, for efficient operation, the Supply Department is divided into six divisions, each with its own particular function."

These divisions and their functions are common to all modern aircraft carriers, in accordance with AirLant/AirPac Standard Ship Organization and Regulations Manual.

Cdr. J. T. Robison, Supply Officer in the USS *Oriskany* (CVA-34), describes

the S-1, or General Stores Division.

"This division controls the nuts and bolts, electronic tubes, machinery repair parts, paper supplies, working tools, sheet metal, nonskid deck paint, lubricants, and general material which keep the ship in operation and its equipment running. It contains 41 storerooms located from one end of the ship to the other and on practically every level. Within these storerooms over 40,000 different line items of material are stored and controlled through an elaborate central stock locator system."

In the *Oriskany*, 32 men are assigned to the S-1 Division. But in the *Independence*, there are 62 men man-



COMMISSARYMEN aboard USS *Sbangri Lu* prepare fresh rolls for crew's breakfast. Tons of food are required daily for thousands of meals.



CARRIER SAILORS enjoy a well cooked meal. A unique aspect of S-2 Division is the staggering quantity of products they must prepare.

ning her 32 S-1 storerooms. The *Kearsarge* has the same number of S-1 storerooms as *Independence* (CVA-62). During her most recent yard period, the number of men in the division was reduced to 20. This is 80 per cent of the manning level.

Keeping stocks up to minimums is a well-planned evolution, especially for an aircraft carrier operating with the Fleet.

Talking about repair parts, Cdr. John J. Beckham, *Kearsarge's* Supply Officer, said: "On the last WestPac cruise *Kearsarge's* Stores Division had on hand 98.4 per cent of its allowance of N Cog (electronics), 98.2 per cent of A/Z Cog (weapons), and a near-perfect 99.5 percent of H Cog (engineering)," a record he is proud of.

Another responsibility of the S-1 Division is reported by the *Saratoga*. The division maintains the Operating Target (OpTar) and departmental budget for the Supplies and Equipage Fund allocated to the ship by the type commander—in *Sara's* case, ComNav-AirLant. The OpTar money is broken down into budgets for the various departments aboard.

The unique aspect of the S-2 or Subsistence (more commonly known as Commissary) Division aboard a modern aircraft carrier is the staggering quantity of products it prepares and dispenses. The men in this division are the ship's cooks, bakers, and messmen. Storekeepers are also assigned to keep records of receipts and expenditures of all provisions and to prepare quarterly returns.

"In one day," reports the *Intrepid*,

"S-2 will serve more than 7000 meals in the general mess, and this figure does not include night and flight rations. These meals require approximately eight tons of food daily, including 1300 pounds of meat and 1600 pounds of potatoes. A single chicken dinner requires a thousand chickens. Predictably, 9000 cups of coffee are consumed by the men of the *Intrepid* daily."

A larger aircraft carrier, the *Independence*, serves more than 10,000 meals a day. And in the *Big E*, with her Air Wing aboard, personnel consume 10 to 12 tons of food a day.

The basic permanent allowance for the S-2 division in the *Saratoga* is one officer and 60 enlisted men. The 170 mess cooks and 15 mess deck MAA's are drawn from the various divisions and squadrons in the ship.

In many carriers, the mess cooks and mess deck MAA's form a subdivision, the S-2M Division. Capt. O. J. Brosseau, former *Independence* Supply Officer, describes the S-2M Division Officer:

"Realizing the importance of operating a good general mess in a ship and considering the size of the job, *Independence* assigned an additional officer as the Administrative Assistant to the Subsistence Officer, in charge of mess deck operations.

"Under the S-2M Division Officer were placed one first class commissaryman and ten petty officers, furnished by different divisions and squadrons in the ship. It was felt that having a line officer directly in charge of the 180 messmen would improve the condition of the mess decks, the

personal appearance of the messmen, and disciplinary problems that may arise within the division.

"The junior officer has nothing to do with preparing or serving food in the general mess, but simply supervises the TAD personnel on the mess decks and insures the general mess is clean at all times.

"This system has not only been effective in the management of the general mess, but it also gives a junior officer a very good opportunity to work with a large number of men in his charge. The job has been effectively rotated between line and Supply Corps officers."

Establishment of an S-2M Division is not universal in carriers, however. Several feel there are other routes to similar results.

Since food is a major factor aboard,



WHAT WOULD life on carriers be without "gee-dunk" stands? They do a roaring business.



S-5 DIVISION has responsibilities for carrier's wardroom and officer's staterooms. Stewards are charged with preparation of food.



CREWMEN of USS Yorktown gather around L. A. Danielson, CSI, who baked and decorated cake to celebrate 100,000th arrested landing.

especially during periods of extended operations, its quality must be good and it must be prepared interestingly. During recent operations in the South China Sea when the *Ranger* completed 65 consecutive days underway, for example, the carrier's cooks prepared special evening meals weekly that generally had an international touch. They were eaten by candlelight.

The *Independence* is typical of an effective approach to imaginative planning. From time to time, it has used such gambits as the Chef of the Day, the Messman of the Month, the *Independence* Weekly, the Sunday Afternoon Buffet, the Sleepwalker's Special, and the *Independence* Cafeteria Breakfast.

A major problem to men serving aboard such a large ship as an aircraft

carrier is "sweating out the chow line." This problem was greatly alleviated in the *Ranger* when she installed a high-speed, "high-class" hamburger stand in the forward galley. The speedy feeding line dispenses hamburgers and french fries, along with light desserts. This supplements the ship's regular feeding lines and is designed to provide a convenient means to eat for flight crews and others pressed for time.

Before the hamburger stand opened, a number of *Ranger's* cooks were sent TAD to various locations of a well-known San Francisco hamburger restaurant. During their training period, they received tips on the fine art of fixing hamburgers from some of the best short-order cooks in the business. Now, *Ranger* men consume more than 2000 "Rangerburgers" daily.

USO, Fleet Canteens, division parties, orphan parties, Centurion and thousand-landing cakes are the responsibility of the S-2 Division. *Intrepid* reports the average cake required to feed 2800 persons weighs 500 pounds and takes two days to prepare.

The S-3, or Sales, Division is concerned entirely with providing personal services to a ship's crew. Capt. Lamar D. Whitcher, a former Supply Department head in the *Independence*, describes the division and its problems:

"We must be prepared to furnish the crew with . . . uniforms, uniform accessories, toiletries, confections, stationery supplies, tobacco products, smoking accessories, gift items, and sundries.

"In addition, the Sales Division is

the only source of the following services: barber, laundry, cobbler, dry cleaning, and tailoring.

"Once the crew becomes familiar with the large selection of merchandise available, its interest in and consequently the demands made upon the Sales Division mount and continue at a high rate during an entire cruise.

"The services required of the Sales Division double in scope and magnitude on departure (of the carrier) from CONUS. Some 700 additional items of merchandise are introduced to the crew and close vigilance must be maintained to keep them constantly in stock while ensuring at the same time that surpluses do not develop."

In the *Saratoga* there are eight retail Ship's Stores and Clothing and Small Stores, a laundry, dry cleaning plant, tailor and cobbler shop, and three barber shops. "The task of providing these services," CVA-60 reports, "is borne by S-3 Division's complement of 120 enlisted men and two officers. The division is reduced to 90 enlisted men and two officers when the ship is operating off the coast of the U.S."

Sales are usually brisk in the Ship's Stores and the profits realized are funneled into the ship's Welfare and Recreation Fund, allowing each division to draw funds for division parties, television sets, and other projects."

Saratoga continues: "Our laundry washes over 70,000 pounds of clothing each week and finishes enough shirts to build a stack over 30 stories high." The *Independence* described the output of her laundry in these terms: "Enough clean clothes for a small-size town."



USS RANGER boasts a high-class hamburger stand designed to serve good food quickly.

Both the laundry and dry cleaning plants are funded by profits from the Ship's Stores. Not all experiences in laundry/dry cleaning plants are profitable. Some are puzzling, frustrating, and even harassing. One supply officer related the story of the "One Gray Shirt":

"When one is processing 6000 pounds of dry cleaning a month," he wrote, "he should expect to have a few embarrassing incidents. But why should a white shirt, run through clean fluid in a load of all-white clothing, suddenly turn gray, as evenly and uniformly as if it had been dyed, when the rest of the load came out Rinso-white?" There was no answer to this riddle, but the owner of the shirt was

the 13 retail outlets and ten vending machines aboard the *Independence*. Cash received from the sale of postal money orders and stamps is also turned over to Disbursing. Change from the vending machines is turned over to the store operators, while cash from the stores and post office is retained for the next payday.

"The same dollar bill is moving from Disbursing to the crew, and back to Disbursing, over and over in a continuous cycle," *Independence* pointed out. "Some new money is put into circulation each pay day to compensate for the currency spent on the beach, sent home, or hoarded in the men's lockers."

Three types of currency are held by

er's job easier and to avoid, if not eliminate, repeating a mistake.

One Disbursing Officer wrote his relieving opposite number recently:

"When we came over to the *Med*, the Disbursing Officer of the ship we relieved turned over to us an exceptionally interesting folder concerning disbursing transactions in the *Med*. It was thorough and enjoyable. We will turn this over when you relieve. Incidentally, it keeps referring to an Enclosure 21-B, which is supposed to solve all kinds of problems. Only problem it doesn't solve is what happened to Enclosure 21-B; we couldn't find it."

Kearsarge's Supply Officer, Cdr. Beckham, described the ship's S-5 Division: "It is responsible for maintain-



VAST AMOUNT of supply items available to carrier is indicated by many catalogues.



ELECTRONIC ITEMS account for about 56 per cent of USS *Oriskany's* 40,000 stock items.



AIRCRAFT SURFACES require special storage racks. These being filled are in *Oriskany*.

interested. He was the ship's Executive Officer.

The disbursing section of the Supply Department is the S-4 Division. In the *Independence*, the division is broken down to four areas of operation: pay record maintenance, travel per diem, shore patrol claim, and financial returns. This is usually the smallest division in the Supply Department.

In the *Intrepid*, an ASW carrier with fewer crew members than CVA-62, the average monthly payroll runs close to a half-million dollars. On the average, the *Oriskany* disburses \$300,000 a payday and about \$1 million during the entire month.

In cooperation with the S-3 Division, Disbursing collects all funds from

the Disbursing Officer in Seventh Fleet carriers: U.S. currency, military payment certificates (MPC), and Japanese yen.

ComSerForSix Flt Instruction 4320.1 details the procurement of foreign currency in various ports visited by Sixth Fleet carriers. Foreign currency is sold to the crew before entering port. In CVA-62, various tidbits of information concerning foreign moneys are inserted in the Plan of the Day, noting the rate of exchange, selling increments, and any special government controls.

Before one carrier relieves another on deployment, it is customary for a "turn-over" file to be sent the supply division officer's opposite number in the relieving ship. This is an informal report designed to make the newcom-

ing the Wardroom and the officers' staterooms. The S-5 Division Officer acts as the Wardroom mess treasurer/mess caterer. He is responsible for making stateroom assignments, maintaining the cleanliness of the staterooms, food service and food preparation in the Wardroom Mess, and maintaining the required records pertinent to the operation of the Wardroom Mess."

This division operates independently from the Subsistence Division, *Intrepid* points out. It has its own food preparation facilities and purchases much of its food commercially ashore. In the *Independence*, approximately 110 men are distributed between Flag Mess, Captain's Mess, Warrant Officer's Mess, ready rooms, and Wardroom Mess. To provide prompt and

efficient service, the men are organized into teams and units for each mess.

Aboard carriers, the Wardroom also functions as one of the ship's showplaces. In such a capacity, it hosts formal banquets for the United States and foreign dignitaries in the main dining room.

One of the best thumbnail descriptions of the S-5 Division is provided by the *Saratoga*, though the description is somewhat breezy:

"The S-5 Division is responsible for the *Saratoga Hilton*—a sort of floating hotel and restaurant with its own airfield on the roof. It has the capacity to house 431 persons in its 250-plus staterooms.

"In those staterooms and in the



ARTHUR McPHEE, SH2, empties laundry into a 300-pound washer in the *USS Independence*.

erates with about 320 members, doing over \$30,000 business each month, with an average mess bill of \$35 to \$45 each month for each officer."

The Aviation Stores Division is the S-6 Division aboard an aircraft carrier. In the *Oriskany*, "It has the immense task of maintaining stock for the Air Wing and its 70-plus aircraft. To keep the aircraft in A-1 condition, a division of 28 men maintain a cargo worth approximately \$8 million in 28 storerooms throughout the ship."

In the *Saratoga*, approximately 15,000 different items are stocked for the aircraft aboard, including spare engines for each type plane. Another 5000 items are kept to maintain the steam catapults and the arresting gear.



IT TAKES a highly skilled cobbler to help keep some 9,200 feet in shoes and on the go.

mately familiar with the headaches of stock control. His S-6 Division maintains over 30 storerooms and carries in excess of 38,000 different support items, including fuels and lubricants, flight clothing, electronic and photographic supplies—but not including aviation ordnance materials. *Intrepid* maintains 20,000 different items.

Even the best of planners in the S-6 Division cannot always anticipate the needs of embarked squadrons, as witness this candid S-6 Division Officer's informal report:

"After two years of practically negative usage (we didn't use any of the stuff at all and ended with more than we started with; it must have been breeding in the storeroom), we off-



LAUNDRY PRESSERS perform one of the many functions required to keep the crew sharp.

three Wardrooms that make up the Mess itself, the 'hotel management' must endeavor to cater to the individual desires and requests of over 300 officers. The life of every officer aboard focuses itself around the Wardroom. His food, living quarters and leisure hours aboard ship are the sole responsibility of the personnel of the S-5 Division.

"The 95 Stewards assigned to the Wardroom Mess have their work cut out for them, maintaining 316 spaces from the 07 level to the 4th deck. In addition to this, Stewards perform all military duties necessary to the operation of a 100-man division and are assigned regular battle stations.

"The Wardroom Mess is a bit more than a mere restaurant. It is a private club in which each member owns a share and necessarily feels compelled to voice his vote. The Mess usually op-

Pilots and crewmen also rely on S-6 Division personnel to replace worn-out or defective personal flight equipment, such as crash helmets, flight suits and boots, oxygen masks and survival knives.

While at sea the Aviation Storekeeper is primarily engaged in the issue of new parts and materials, but he is also occupied with reports, bookkeeping, and ordering the replacement of stock.

When in port, the nature of the Aviation Storekeeper's job does not decrease in tempo. "Mountains" of new materials are received to replace those expended—especially those items not easily procured by underway replenishment or COD flights.

Cdr. J. H. Chesure, *Independence's* present Supply Officer, is a man inti-

loaded a great deal of excess chaff. (Chaff is baled metallic tinsel, similar to that use to decorate Christmas trees and airdropped loose to confuse enemy radar.)

"Naturally, when the squadron came aboard it had a heavy operational requirement for it when we joined the Fleet. We therefore requisitioned enough to satisfy their requirements, and it took four follow-ups before we received status info. If this wasn't bad enough, we let the status info slip through our fingers and sent a fifth follow-up which said, in effect, that we gave up. The result was swift and justified, calling forth a blast of wrath from above wanting to know what we did with the status info that had been sent. We finally received the chaff several weeks late."

Fortunately, the writer pointed out,



A COOL MILLION or so lies on the table in front of USS Oriskany's paymaster. Disbursing is usually the Supply Department's smallest division, but money is a big responsibility.

such slip-ups are usually an exception. An impressive performance of the capabilities of the Supply Department

in a modern aircraft carrier was tried and proved in the autumn months of 1964 when the *Enterprise* was flag-

ship for Operation *Sea Orbit*, the circumnavigation of the globe without underway replenishment.

"While we have had experience in steaming nuclear submarines around the world," stated the late Adm. Claude V. Ricketts, "we have not had a comparable experience with nuclear surface force task groups. We hope to gain experience in operating on a long voyage, steaming as a self-contained nuclear task group free from logistic support."

Sea Orbit provided that experience. Noted *Big E's* Supply Officer, Cdr. Charles T. Creekman:

"Probably the most significant aspect of the cruise as far as the Supply Corps is concerned is that we have no major problems to discuss and analyze. It would be fallacious to say that this was an ordinary deployment without incident, but it would be equally false to create problems where none existed. This, then, was the key lesson of our experience: by using basic supply procedures, and by the intelligent and diligent application of Fleet stocking objectives, available load lists and guides, and the all-important usage data available on board, the potential problems of an extended unreplenished cruise can be minimized."

The successful completion of *Sea Orbit* is best summarized by quoting from the cruise certificate awarded to each member of the ship's company:

"*Enterprise* returned to Norfolk, 3 October 1964, armed and ready to defend her country—furthermore, be it known that *Enterprise* did make this voyage sailing under her own power, with no assistance from any outside source, save God."



UNDERWAY REPLENISHMENT is one way of keeping an aircraft carrier supplied with items ranging from fresh vegetables to spare parts.



VERTICAL REPLENISHMENT speeds the transfer of supplies at sea. The *belo* remains airborne during operation, hovering to unload or load.

RANGER BACK FROM VIETNAM AREA



BUSY TUGS bustle around the giant carrier USS Ranger as the ship backs into her pier at NAS Alameda. Ranger crewmen were reunited with their families and friends shortly after this photograph was taken. CVA-61 was returning from 9 months of WestPac operations.

RANGER is home again. Early in May the attack aircraft carrier returned to home port, NAS ALAMEDA, a battle-tested veteran of nine months with the Seventh Fleet in the South China Sea and other Western Pacific waters. She was commanded on this tour by Captain Alton B. Grimes.

Ranger deployed August 5, 1964, for her fifth tour of duty with the Seventh Fleet. She underwent her first combat operations since she was commissioned in 1957.

Although the August departure from the San Francisco Bay Area was as scheduled, it followed closely on the heels of unprovoked PT boat attacks launched by the North Vietnamese against U.S. destroyers in the Gulf of Tonkin. From that time on, the war in Southeast Asia intensified until North Vietnamese forces attacked an American air base in South Vietnam, killing and wounding U.S. and South Vietnamese troops, early in February.

As news of the attack reached the American public, Ranger, Coral Sea, and Hancock launched responsive strikes against selected military targets in North Vietnam.

Throughout the rest of February

and the first half of March, Ranger remained on station in the South China Sea. Although the situation quieted a bit after the February strikes, squadrons of embarked CVW-9 continued to fly sorties over enemy-occupied positions.

Originally scheduled to return home April 6, Ranger was extended in WestPac for a month to meet a new Seventh Fleet requirement raising the number of carriers in the area from three to four.

Ranger pilots continued to carry out strikes until a fuel fire struck one of the carrier's main machinery spaces. An investigation of the damage, held in Subic Bay, R.P., revealed that most of the equipment in the space was undamaged.

The carrier left Subic Bay for Alameda and a long-awaited reunion with families and friends.

During the cruise Ranger spent one continuous period of 65 days at sea. She averaged 65 per cent of the time underway and steamed 66,100 miles. From November 13 through March 19, a period of 126 days, Ranger was at sea 116 days.

With more than 9,600 shipboard

landings to their credit during 27,000 flight hours, CVW-9 pilots played a major role in the strikes against North Vietnam. VA-93 and VA-94 fliers, piloting A-4C Skyhawks, and VA-95 pilots, in A-1H/J Skyraiders, flew the bombing missions. VF-92 and VF-96 F-4B Phantoms provided air cover and flak suppression.

Airborne support for the combined attack and fighter assaults came from detachments of VAH-2, VAW-11, and VFP-63. VAH-2's Detachment Mike, flying A-3B Skywarriors configured as tankers, provided aerial refueling while VAW-11's Detachment Mike launched E-1B Tracers for airborne early warning, communications relay, and search and rescue. Photographic intelligence was provided by VFP-63's Detachment Mike in RF-8A Crusaders and RVAH-5 in RA-5C Vigilantes.

During 151 underway replenishments, Ranger took on more than 21 million gallons of fuel. Nearly 2,600 tons of food were highlined to the ship.

During its deployment the carrier visited only three ports: Hong Kong, B.C.C.; Yokosuka, Japan; Subic Bay.



CHASE PILOTS, flying DF-8Fs at China Lake are (from left) Lieutenants Pat Thompson, Ken Sikés, Dick Thomas, Dave Jordan, Dick Karr.

EPIC FLIGHT IN TARGET DRONES

A NEW ERA in aviation was ushered in as a remote-controlled dual flight was conducted by Target Drone Division Naval Ordnance Test Station, China Lake, Calif. After eight years of research and development, the flight of two unmanned drone aircraft was conducted through televised remote control last November.

LCdr. Jack B. Miner spearheaded the program with what he originally termed an "interim" plan. His suggestion to Navy officials was that at least two drone targets could be flown under control by installing television in one of the planes.

After the initial go-ahead was received, LCdr. Miner and his crew knew they had a job ahead of them. There was a time limit and the project became a personal challenge to each man. Working on this basic concept, NOTS and NAF personnel designed, engineered and developed an aerial television camera and transmitter and mounted them under the port wing of the control drone.

According to Miner, the auto-pilot controlled QF-9G is tricky at best, even though a chase plane is flying control over the drone. Thus the control plane had a mission to keep the slave plane on camera at all times. The picture of the slave plane's relative position to the control craft was transmitted to the ground control station, sometimes up to 75 miles away, which maintained remote control over both planes through this method. Previously, ground remote control was possible only over one craft at a time.

When asked about the program, Miner expressed great satisfaction that the program was at the "end-of-the-beginning" stage. He felt that his concept must acquire many refinements in the months ahead. Plans call for proposed flights of three targets under televised control.

Although it is one of the Navy's smallest drone target units, it has twelve QF-9G (jet-powered) drones, ten BQM-34A *Firebee* target drones, four DF-8F and two T-28 chase aircraft. The QF-9G *Cougar*, flown in Korea as the Navy's first line fighter plane, is used at China Lake in low-to-medium (500 to 30,000 feet) altitude tests. The BQM-34A



LAUNCH CONTROL officer, Lt. Todd Crombie, guides QF-9G on takeoff. After drone reaches proper altitude, chase planes take over.



FIRST PHOTO of dual target presentation shows unmanned QF-9G drone aircraft in tight formation. Plane (right) with TV camera and transmitter under left wing relays relative position picture of "slave" to ground control station. Drones are controlled up to 75 miles.

drone target, a scaled down version of a sweptwing fighter plane, is used for low altitude to high altitude (50 to 50,000 feet) and can be used for high speed (500 knots) evaluation.

The QF-9G drones are launched and landed using normal runway procedures. With takeoff deemed relatively simple, drone controllers encounter their greatest difficulties in the landing procedures.

Once the drone is airborne, it is turned over to a T-28 chase plane for low altitude and slow pattern flight. After proper altitude and speed are reached, control is then turned over to DF-8F jet chase planes and guided into the firing pattern. From this point, control becomes extremely critical as control switches back to the ground station.

During the actual ground control portion of the mission, Miner and his crew assemble in a modified CIC. As crewmen plot the course of the drones, Miner physically controls the targets while monitoring the television picture relayed by the control plane.

Contrary to a widespread belief, the target drones are not meant to be shot down on every test flight. Inadequate guidance or faulty sensing often causes drone target destruction. In many cases, the missile being fired is of much greater value than the drone target it destroys. The highest number of missions ever flown by a QF-9G at China Lake is 12.

The results of the project will give ships of the Fleet and scientists engaged in surface-to-air missile development programs a badly-needed dual target presentation for testing and evaluation.

Nicknamed the "Redbird" division, the unit is comprised of two officers, 59 enlisted men and 16 civil service technicians. It is under the command of Captain Robert R. Yount, C.O., NAF CHINA LAKE. According to Captain Yount, "The latest achievement serves us as a stirring tribute to all the NOTS personnel, military and civilian, who contributed their technical knowledge and resources to this success."



TELEVISION CAMERA and transmitter, mounted under the left wing of the QF-9G drone, receive special attention prior to the takeoff.



NERVE CENTER for flights is manned by a special team directed by LCdr. Jack B. Miner who literally flies the drone from the console.

MOBILITY SPEEDS LINE MAINTENANCE

THERE is always a faster and better way to do things, and the Naval Air Facility, Andrews AF Base, has come up with a winner. The facility has given its Line Control Systems wheels. Now the customer is served on the double and the number of flights not completed because of mechanical difficulties is being reduced and so is the aircraft turn-around time.

NAF WASHINGTON, commanded by Captain W. R. Pittman, incorporated the Maintenance Management and Material System into the Maintenance Department, headed by Commander L. J. Perkins, Maintenance Officer. At the same time the 3M system was introduced, the "mobile line shack" was established. Aim of the program was to initiate immediate action on aircraft discrepancies from returning flights as well as hold down flight aborts due to problems of aircraft availability.

The NAF Metal Shop modified four flat-bed vehicles by enclosing them, installing seat benches, yellow sheet holding racks and portable industrial radios. This design was developed by Lt. J. A. Edwards and Chief W. B. Shoaf. The drivers can communicate at all times with Maintenance Control and work centers. The busses carry yellow sheets for all NAF aircraft.

The system functions in this way: When pilots are ready to man aircraft, they notify Maintenance Control via hot line from Operations. Appropriate line busses will then be standing by



PLEASED with their accomplishment are Lt. Edwards, Captain Pittman and Chief Shoaf.

to meet the pilots at the aircraft. If there is a downing discrepancy noted on the aircraft or if the flight is aborted owing to mechanical difficulties, the driver will contact Maintenance Control and secure a replacement aircraft. The Operations Duty Officer is notified of the aircraft change. If the discrepancy is minor, Maintenance Control dispatches a trouble-shooting crew to the aircraft at once.

When aircraft return from flights, appropriate line busses meet them in the line. Any discrepancies noted will be corrected by Maintenance Control. An added service, and an attractive one, workload permitting, is a ride for pilots to the Operations Buildings.

1000th Rework of Crusader Marks PAR Score at North Island

The 1000th Progressive Aircraft Rework (PAR) of an F-8 Crusader was completed in O&R NORTH ISLAND the last part of May. The jet fighter has begun another service tour with VMF-122.

During the 36 days of rework, the aircraft was stripped of paint, cleaned, disassembled as needed to remove accessories and components requiring overhaul or replacement. It was fully repaired, assembled, painted with epoxy-polymide and dried in an oversized oven, weighted and balanced, ground-checked, and finally test-flown by a U.S. Naval Aviator.



IN THE NAVAL AVIATION Museum, NAS Pensacola, 1st Lt. Edward P. Moore, USMCR, was awarded the Distinguished Flying Cross for heroism during troop lift operations in the midst of an insurgent Viet Cong stronghold.

Weapons Range Milestone 100,000th Bombing Run at Yuma

A milestone was passed at MCAS YUMA May 10th over the stark rock, cactus, and sand that is "Candid Camera."

While temporarily on duty at YUMA with his squadron, Commander Robert P. Nottingham, the Commanding Officer of VA-144, made the 100,000th recorded bombing run over Candid Camera, VA-144, which won a combat E in competitive exercises in 1961-62, is based at NAS LEMOORE, Calif. Cdr. Nottingham praised Candid Camera as "the finest target complex I have ever seen."

The station's Executive Officer, Lieutenant Colonel W. C. Terry, congratulated Commander Nottingham, presented him with a golden inert bomb and a letter from the station's C.O., Colonel W.M. Cargill.



LINED UP in formation are three of the four Line Control busses. The drivers, not regular members of the division, are Commander Veborn, Commander L. J. Perkins and Capt. Pittman.

MARTIN-BAKER SEAT SAVES 1,000 LIVES



MARTIN, AVIATION PIONEER AND INVENTOR



THE MARTIN-BAKER SEAT HAS SAVED MORE THAN 300 U.S. NAVY AND MARINE AVIATORS

IN MAY 1965, a U. S. Air Force pilot ejected from a disabled F-4 Phantom to become the 1,000th flier to be saved by a Martin-Baker ejection seat.

The milestone ejection was noted with considerable pride in England, home of the Irish inventor of the life-saving device. It was cheered also by more than 300 U. S. Navy and Marine pilots and Flight Officers, who were among the first thousand ejected by the Martin-Baker seat in this decade.

Among the airmen who have been saved is one British *Lightning* pilot who ejected at Mach 1.7, fastest known ejection speed. Slowest ejection came at a speed of zero, altitude 10 feet, by a German VTOL pilot. Highest ejection was probably the double exit of a *Canberra* crew who departed their aircraft at 56,000 feet. Both men lost consciousness during their free fall; one revived at 5,000 feet with his parachute billowing above him, the other regained consciousness lying on the ground.

The Martin-Baker seat is incorporated into more than 23,000 aircraft in 43 air forces. The seat bears the name of its inventor, James Martin, who started work on the problem in the early 1940's. In memory of his associate and test pilot, Captain Valentine Baker, Martin has always preserved the hyphenated designation. Captain Baker was killed testing an aircraft in 1942.

In 1944, Martin's first prototype of an ejection seat consisted of a long arm attached to the spine of an aircraft. Hinged at the back, it ended

in a hook attached to the pilot's parachute harness. The firing mechanism was a large compressed spring.

Martin decided that an explosive charge was needed for rapid and efficient exit. He then developed the now familiar test rig with a seat on rails. His next problem was to determine the amount of "G's" a pilot could withstand from that position.

After initial tests produced a crushed vertebra for one of his volunteers, Martin decided to study the human frame in detail. He attended spinal operations, experimented with a human skeleton and found the two limiting factors to be the total amount of "G" forces and the rate at which they were applied. In his early experiments, although the average "G" force was low, it was being applied at the rate of 600-800 "G's" a second. He established, as a basic design factor, that 21 "G's" applied at a rate of 250-300 a second is the limit.

Martin conducted the first cartridge-operated ejection with a dummy from a modified *Defiant* on May 17, 1945. Utilizing the two-seat *Meteor*, he invented the face screen method of ejection to protect the pilot's face.

In tests with dummies, he found that the seats were rumbling and the main parachutes bursting at speeds over 410 mph. A drogue gun was devised to pull the drogue far enough out into the slipstream to deploy.

The first live ejection occurred on July 24, 1946, from a *Meteor* at 8,000 feet at an airspeed of 320 mph. The second ejection, a few days later, was at 12,000 feet at an airspeed of 420

mph. Both were completely successful and proved the efficiency of the face screen and the drogue gun. In 1947 the Martin-Baker seat was specified as standard equipment for all RAF and Royal Navy jet aircraft.

With separation from the seat and parachute deployment done manually at that time, limitations at very high or very low altitudes were obvious. A barometric release unit was installed that would automatically initiate disconnection of the seat harness, separation from the seat, and deployment of the main parachute. The device would open the parachute at altitudes of 10,000 feet or below. If ejection was initiated over 10,000 feet, the pilot would free-fall to that altitude before his parachute would deploy. Oxygen from an emergency bottle was supplied automatically during the free and stabilized fall.

The rapid parachute deployment and stabilization necessary for low-level, low-speed ejections were found to be unsuitable at high-speed, high-altitude ejections. Rapid deployment of the parachute at high speeds would burst the canopy. To counter this, Martin fitted into the existing time delay mechanism a "G" sensing device.

During a high-speed ejection, rapid deceleration triggers the "G" switch and prevents deployment of the canopy. At low speeds, or as soon as the drag on the parachute is at a safe level, the time delay opens the main canopy. With installation of the "G" sensing device, the high-speed, high-altitude, low-speed, low-altitude ejection seat had arrived.

'IN HOUSE' MAINTENANCE AT NORIS

A FINAL LINK in the rework chain of SH-3A *Sea King* helicopters was forged recently by O&R NORTH ISLAND, San Diego. A test stand for the main gear box was locally manufactured, making possible the in-house overhaul of the last dynamic component of the *Sea King*. A twin to the North Island test stand will be installed at O&R JACKSONVILLE, Florida.



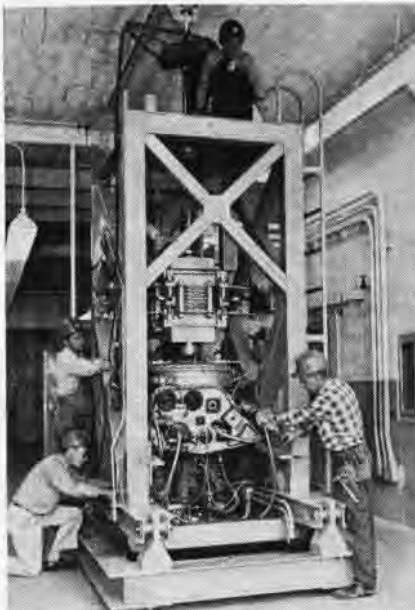
METAL DIVISION technicians inspect the O&R test stand prior to first operation.

All other dynamic components of the jet-powered whirlybird are already being overhauled at North Island, the West Coast rework point for the helicopter and the T-58 engines.

The SH-3A main gear box test stand provides accurate means to test the gear boxes. It is designed to provide two basic checks of reworked gear units. One is a high-speed, no-load check and the other is a check at low speed with load. The stand has two 20-hp, 230-rpm motors used for the low speed tests, and two 15-hp, 3,380 to 19,000 rpm motors used for high-speed no-load testing.

The SH-3A main gear box test stand is the result of long-range planning, begun in 1960 when the Navy designated O&R NORTH ISLAND as the West Coast rework point. At that time Operations Analysis personnel began preparing for the day when rework of dynamic components would revert to Navy facilities. The goal was to develop support requirements for the entire aircraft.

One by one, North Island estab-



NORTH ISLAND personnel install the main gear box in test stand for an evaluation.

lished a rework capability for the components. Significant among these was that of the main rotor blade. Rework of the main gear box was the last of the dynamic components to be assumed by the O&R facilities.

More than a year ago O&R personnel made studies of rework cost and out-of-service time of SH-3A main gear boxes. The survey indicated that "in-house" rework could be of advantage to the Navy.

W. W. Scheele was the Project Engineer in charge of the test stand development.

Construction started in late October. When possible, commercial components were used. Many parts were manufactured by O&R shops. For example, there was no suitable transmission output shaft loading device available. A six-element disk type brake was designed "in house" with a capacity for applying torques up to 500,000 inch-pounds, simulating the load of the main rotor blades. Also, 321 parts for each brake were manufactured by O&R's metal division.

With time a critical factor, high priority was given to the test stand manufacture. By mid-March, both test stands were completed. The North Island machine was installed and underwent tests prior to full operation.

Dual Target System Tested Simulates Aircraft in Formation

A multiple target system, designed to simulate dual aircraft flying in formation, is being tested by the Naval Missile Center's Experimental Targets Branch at Point Mugu, Calif. The system consists of a BQM-34A as primary target and two TDU-2 tow targets.

Carried by a DP-2E launching aircraft, the BQM-34A is carried under one of the plane's wings and the two TDU-2 targets are arranged on a platform at the rear of the plane. To deploy the system the two targets at the rear are streamed out on cables. Then the BQM-34A is released with a cable attached to it.

The Dual Tow Flight Simulation Project was begun in December 1963 and is still undergoing test and evaluation. The subsonic system was developed by the Naval Air Development Center at Johnsville, Pa. It can be operated from 500 to 40,000 feet.

50,000 Safe Hours for HT-8 Record Set in March with H-34

Helicopter Training Squadron Eight at Ellyson Field, Fla., has accumulated 50,000 accident-free flight hours in the Sikorsky H-34. The record flight took place in March when an H-34, flown by Lt. A. W. Wirth and Ens. S. L. Perch, flew from Tallahassee to Ellyson Field. Crewman for the flight was Aviation Machinist's Mate Airman J. W. Barnes.

Lt. Wirth has been a flight instructor in HT-8 since July 1962. In September 1964, he completed 1,000 accident-free hours in the H-34. Ens. Perch is now serving with HS-2.



DAVID G. SKIDMORE, BuWeps Representative-in-charge at Martin's Orlando (Fla.) Division, displays Presidential Citation received in connection with over \$5.5 million in Value Engineering savings on Bullpup.



FRONT VIEW OF the \$3.5 million two-building complex at the U. S. Naval School of Aviation Medicine at NAS Pensacola, Florida. The newly constructed facilities consist of two windowless, air conditioned buildings with a total combined area of 90,000 square feet.

NEW MEDICAL BUILDINGS DEDICATED

ON MAY 14 at NAS PENSACOLA, the U. S. Naval School of Aviation Medicine dedicated a \$3.5 million two-building complex. The new buildings, with a combined total of 90,000 square feet of space, house a portion of the teaching, administrative and research departments of the school.

Among those attending the ceremony were Dr. Robert W. Morse, Assistant Secretary of the Navy for Research and Development; Vice Admiral A. S. Heyward, Jr., CNATra, Rear Admiral J. L. Holland, Commanding Officer, U. S. Naval Aviation Medical Center, and Rear Admiral H. H. Eighmy, Assistant Chief of the Bureau of Medicine and Surgery for Personnel and Professional Operations. Admiral Eighmy was guest speaker at the dedication. Over 700 military and civilian dignitaries gathered outside the new complex to witness the ceremonies.

The main building houses the administrative and research offices of the school. The second building contains classroom facilities and an improved aviation physical examination division.

The departments and branches lo-



THE SCHOOL, a seven-building complex, is commanded by Capt. H. C. Hunley, MC, USN.

located in the new complex are: Psychiatry and Neurology, Aviation Physical Examination Division, Medical Electronics and the Physical Sciences. Because of space allocation and equipment logistic problems, Emergency Escape Systems, Veterinary Services, Otorhinolaryngology, Ophthalmology and Optometry will remain in their present spaces.

Since its opening in 1939, the Naval School of Aviation Medicine has participated in many research projects.

These studies have included advance research in space flight (Monkey Baker and her 1959 space flight); human tolerance to acceleration; stress due to high intensity noise; aviation safety, escape and rescue; physiological and psychological factors in the selection of aviation personnel; cardiovascular problems in aviation; visual perception in moving objects; the effects of environment in aviation medicine problems; pulmonary physiology, and research in voice communications.

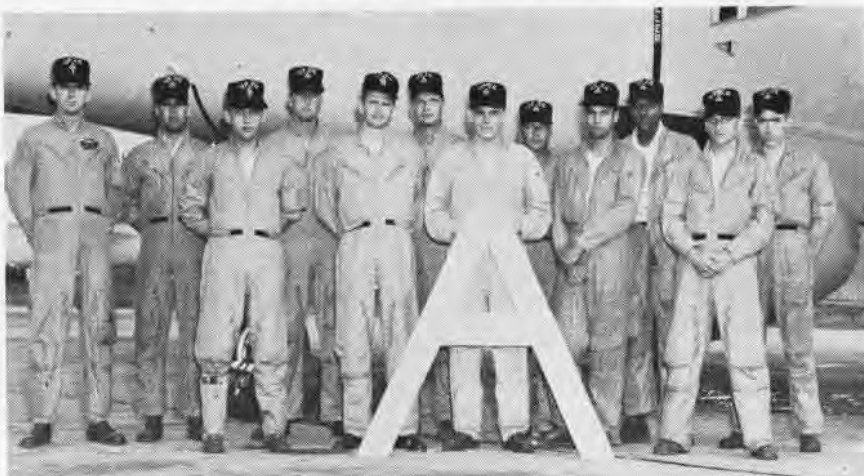
During the dedication, Captain Ashton Graybiel, head of the research division of the school, was presented the Captain Robert H. Conrad Award for Scientific Achievement. A world-renowned specialist in aero-medicine and related fields, Dr. Graybiel has served at the school for the past 23 years. Dr. Morse presented the medal and citation, describing it as the "Navy's analogue to the Nobel Prize."

Although the award is open to civilian scientists and military scientists engaged in research under contract to the U.S. Navy, this is the first time it has been given to a Naval Officer on the basis of his preeminence as a distinguished research scientist.

ON PATROL WITH ATLANTIC AIR WINGS

COMPETITION commenced this month to determine the best maintenance patrol squadrons in the Atlantic and Pacific Fleet Air Wings.

Mechanics and other specialists of all patrol aircraft types will be competing for a trophy signifying superior achievement in squadron aircraft maintenance. The trophies, one for each Fleet, were donated by the Lockheed California Company. Both land-



PATROL PLANE COMMANDER, LCDR. R. W. Case (behind A, with Crew Ten) was the first of six VP-24 crews to become "Alfa" designated, thereby signifying their ASW combat readiness.



TWO PATROL squadrons a year will receive a trophy honoring them for "Best Maintenance."

plane and seaplane squadrons are eligible to compete.

In the future, annual selection of winners will be determined by automatic data processing and the 3-M system. Until full automation is implemented however, selection of winners will be made on the basis of a formula set forth in OPNAV Instruction 3590.12 of May 10, 1965.

Special emphasis of the competition will be on flight hours flown, PAR discrepancy reports, number of flights per aircraft and maintenance department grades earned during annual inspections.

Local Fleet Air Wing commanders

will nominate their "Best Maintenance" squadrons at the close of each fiscal year. Commanders of the Atlantic and Pacific Fleet Air Wings will designate two squadrons within each Fleet. The Type Commanders, Naval Air Force, Pacific and Atlantic, will submit recommendations to the Chief of Naval Operations, who will announce winners.

In addition to a rotating trophy for each Fleet, squadrons are to receive annual citation scrolls.

Three Irish Setter puppies were resettled at NS ROOSEVELT ROADS as reminders of a VP-18 trip. The puppies were brought to the Caribbean station by Lt. J. M. Notargiacomo, whose crew spent three weeks in Londonderry, Ireland, attending the Joint ASW School. During the short term, the aircrew studied submarine search and localization procedures with crews from various NATO countries.

VP-45 reached the highest rung of the status ladder for patrol squadrons within the Atlantic Fleet—all 12 of its plane crews were designated as "Alfa" qualified. To reach its fully-qualified state, the squadron's officers and men had to complete 19 separate training exercises to attain a 100 per cent rating.

Captain A. C. Cason, Commander Fleet Air Wing Eleven, called the qualification achievement "a historic

first within FAW-11." He commended the squadron upon its accomplishment and predicted that other squadrons will find it difficult to reach the fully-qualified goal. VP-45 utilized "all available opportunities" during its deployment to Operation *Springboard* to raise its combat readiness level.

VP-16 plane crews will never come near the airborne endurance record held by their new Commanding Officer. Commander Charles Eadie, who recently relieved Commander William Vaught, was a crew member of the "Snowbird" ZPG-2 airship which in 1957 set a record of 264.2 hours of non-stop non-refueled flight. Since reporting to VP-16 in 1963, Commander Eadie has been Operations Officer and Executive Officer of the squadron.

A patrol squadron covers a lot of ocean in a year. VP-7, for example, totted up the following 12-month schedule:

In May 1964, the squadron started a five-month deployment to Rota, Spain, with a detachment based simultaneously at Keflavik, Iceland. Upon returning to Jacksonville last October, the squadron transitioned its crew from the SP-2E model *Neptune* to the SP-2H. Then came two weeks in Roosevelt Roads as a participant in Operation *Springboard*. A detachment also has been maintained at NAS



TO INSURE all aircrewmembers are properly outfitted, VP-26 Safety Officer inspects the unit's crewmembers for flight and survival equipment.



AT NAS NORFOLK, Cdr. R. D. Amme, VP-24 C.O., swears in Ensign Wm. Donahue, a P-2 plane captain, who won commission as an LDO.

GUANTANAMO, Cuba, since January. Commander Thomas Graham was C.O. during the year; Commander Wycliffe Toole, Jr., recently assumed command.

A Flight Officer with VP-7 is pointed toward a career as a pilot. He is Ltjg. J. M. Williams, who has served as an Observer in a flight crew, but who hopes to return after flight training as a Naval Aviator. He has orders to report to Pensacola for the first phase of flight training.

* * *

Ten flight crews represented VP-49 for three weeks in a NATO ASW exercise. The squadron, which flies the P-3 *Orion*, was based at NS KEFLAVIK.

* * *

Another new Commanding Officer, Commander J. E. Klause, of VP-11, was on his way to operational commitments only hours after taking com-

mand of the squadron at NAS BRUNSWICK, Maine. He relieved Commander J. P. Richardson.

* * *

BEQ is a new acronym at NAS JACKSONVILLE. It stands for Bachelor Enlisted Quarters. Using elbow power supplied by crews of men from FAW-11 and patrol squadrons based at Jax, an old building at the air station has been converted into living quarters that afford a degree of privacy and a home-like atmosphere. VP-16 crewmembers were assigned by rate to different wings of the building and allowed to select roommates. They then applied paint, scouring powder and wax to set their own decor. Rooms contain two beds, separate closets, chests of drawers, wash basin and a writing desk. Since moving in, stereo phonographs, rugs and other home touches have been added. Plans are being made for reno-

vation of a second building to similar BEQ use.

* * *

VP-24 conducted exchange visits with the 415 Canadian Maritime Squadron. A VP-24 crew led by LCdr. S. P. Halle visited the Canadian squadron at Summerside, Prince Edward Island, and an RCAF crew led by Flight Lieutenant R. Connell made the exchange visit to Norfolk in April.

* * *

P-3 *Orions* were set to make their first appearance as part of Fleet Air Wing Three at NAS BRUNSWICK last month. First Brunswick squadron to receive the long-legged ASW patrol aircraft is VP-10, a unit which traces its history back more than 40 years. VP-10, which has been flying the P-2 *Neptune*, was due to commence P-3 transitioning at NAS PATUXENT RIVER.

* * *

A group of 10 German airmen (two pilots, two tactical coordinators and six crewmembers) received indoctrination in the U.S. Navy's P-3A *Orion* during a tour with VP-30, Detachment Alfa. The airmen spent the first four weeks at NAS NORFOLK and concluded their training with two weeks at Patuxent River. A second crew was sent to Jacksonville for training. The German detachments were receiving *Orion* training, but will serve as ASW instructors in the German Navy's transition to the new Brequet 1150 "Atlantic" aircraft. The Germans recently purchased 20 Brequets. In charge of the German crew was Commander Bernhard Schaefer, who received his Naval Aviation training at Pensacola.



IN THE LAST YEAR, landmarks of the Mediterranean world became familiar to VP-11 while based at Sigonella, Italy. Mount Etna is the backdrop for red and white lightning bolt insignia.

'CHECK YOUR OIL' AND SAVE A PLANE

THE DAY may come when a service station attendant will take a sample of the oil in your automobile, run it through an electronic device, and give you a detailed analysis of the engine's condition in five minutes.

Sound far-fetched? It isn't. As a matter of fact, the Navy is applying just such a system to predict aircraft engine and transmission failure.

Last August, for example, an Air Force F-105 *Thunderchief* was grounded on the recommendation of NAS PENSACOLA's O&R Spectrometric Oil Analysis Laboratory. Lab engineers determined that the F-105 was unsafe when they detected a large concentration of wear metal particles suspended in oil samples from the *Thunderchief's* engine.

Explaining the reason for concern with metal particles too small to be seen without a microscope, Bernard B. Bond, O&R materials engineering superintendent, says: "There is a definite connection between the concentration of submicroscopic wear metal particles found in engine oil and the actual wear on the moving parts lubricated by the oil."

After the first oil analysis, the lab asked for a field examination of the F-105's engine and for removal of the oil pump, which was thought to be defective. But subsequent tests continued to reveal high iron content. The plane was grounded.

Then the gear box was changed. The engine was ground-run for about five hours. Oil samples were taken every 30 minutes. Analyses continued to show increasing iron in the oil, so the lab recommended a complete overhaul. When it was done, a deficiency report confirmed the experts' suspicions: A deteriorating engine part, not even suspected of being faulty, was damaged to the point of failure. The lab action may have saved human lives and a \$5½ million aircraft.

"The F-105 engine was new and the Air Force had no reason, other than the analysis, to suspect the part," says Barney J. Chisolm, oil analysis supervisor.

The Spectrometric Oil Analysis Laboratory is a unit of the Aeronautical Engineering Group in NAS PENSACOLA's O&R Department. Jack F.



CHEMIST James Jennings places a vial containing oil in spectrometer for analysis.

By Gary S. Brayshaw, JO3

Witten, head of BuWEPs' Maintenance Engineering Programs Branch, started the program in 1955 to find out if the wear metals analysis method—successfully used by major railroads and other large diesel equipment operators—could also monitor aircraft engines. Now, the project is directed by John M. Ward of the Programs Branch.

After monitoring 20 engines for two days, the lab detected two that were failing to provide the first tangible evidence that the system would work. The lab now analyzes approximately 400 samples a day on a two-shift basis for any Navy activity that requests the service and for other military units who may need assistance.



ENGINE SECTION was discovered scored when oil analysis showed high aluminum content.

In addition to contracting a similar civilian-run operation in San Juan, P.R., BuWEPs expects to have a second lab of its own for West Coast aircraft at NAS NORTH ISLAND, San Diego, by early 1966. Six more labs are planned around the world.

Key to the laboratory operation is a device called a spectrometer, an extremely sensitive instrument. It not only establishes the quantity and type of wear metal content in oil by a complex system of light wave measurement, it also announces its findings by printing the analysis on punch cards and on past history cards.

If the analysis reveals too high a concentration of metal particles suspended in the oil, the statistical card punch operator, Dorothy Holley, brings the findings to Chisolm's attention. He studies the results and compares them to those of previous tests. Then, if warranted, he notifies the submitting activity by phone.

The entire analysis takes only 65 seconds per sample. All samples are analyzed the day they are received.

The cash value of the program is obvious. So far, it has cost about \$600,000. Each plane crash it prevents saves the cost of an aircraft. Some of the planes monitored are worth more than \$5 million, most of the jets exceed \$2 million in cost, and all the prop aircraft run more than \$100,000. Another consideration is the prevention of unnecessary extensive damage and subsequent overhaul expense.

There is, however, an even greater merit. It is impossible to say exactly how many lives have been saved since the program started, but the implications are obvious.

One of the best examples of the lab's success is this true story:

A plane used to transport the commandant of the Sixth Naval District was grounded two years ago because of an ominous analysis. An overhaul discovered that two engines the lab said were faulty were just that. The flight engineer said he had no idea anything was wrong. He couldn't have; there were no other indications.

"As a matter of fact," he said, "I thought they were the two best engines in the plane."



HULL CAME ORIGINALLY FROM A COAST GUARD BUOY BOAT



CONTROLS FOR CARRIER MODEL ARE LOCATED IN SUPERSTRUCTURE

SEATTLE LAUNCHES ENTERPRISE, JR.

WHEN NUCLEAR TASK FORCE I, in company with *Enterprise*, makes its appearance in the Pacific this fall, it will find another carrier named *Enterprise* operating in Pacific waters. *Enterprise, Jr.*, was built on a hull originally belonging to a Coast Guard buoy boat. Christened in Seattle, the craft is 53 feet long and has a crew of two.

Early in 1964 a search was initiated for a surplus boat hull suitable for conversion to a model of an aircraft carrier. A hull was located at the U. S. Coast Guard Station, Tongue Point, Oregon. It was brought by a buoy tender and deposited at the U. S. Naval Supply Depot, Seattle, where the transformation took place. The model is used in connection with local recruiting and to promote general interest in the Navy.

The original power plant, a 150-hp Cummings diesel was unusable. After a futile search of the surplus files, BuSHIPS furnished a newly-overhauled 64HN9 GM diesel engine. When the bow section was added to the original hull, the length became 46 feet at the waterline. When the new forward section was made watertight, the hull was then ready to support the flight deck.

The 1000-square-foot flight deck, made up of two layers of one-half-inch plywood with overlapping joints, represents 3,000 pounds of plywood. The superstructure, also made from one-half-inch plywood, houses the operator. The island contains power



STERN VIEW SHOWS FLIGHT DECK BRACES



NON-SLIP PAINT IS APPLIED TO THE DECK



BOW EXTENSION ADDED SIX FEET TO HULL

steering, power clutch, throttle, compass, and a full set of engine instruments. The model may be controlled by one man except during docking operations.

Ultimately the two aft elevators will be electrically operated; arresting cable will be operable as well as one of the catapults. Six scale model A-4C *Skyhawks*, two A-3B *Skywarriors*, and one C-1A *Trader* will adorn the flight deck to create the scale illusion. There will be three compartments below decks. A forward cabin will be equipped with an electric refrigerator, three-burner stove, sink, marine head, and two divans all furnished at no cost from surplus. The second compartment is a fully enclosed engine room. The rear cabin will house a lounge equipped with wall-to-wall carpeting, wood paneling and a glass top chart table. In a scale comparison to her namesake, *Enterprise, Jr.* is 53 feet long and 17.4 feet high—a scale of 20/1.

Although the inventory or book value of the model is expected to approximate \$30,000, it actually represents a dollar investment of slightly over \$200.00. This was all made possible through donors, surplus items, and salvage.

Its first public appearance was at the Seattle Center Coliseum in the 1965 Seattle Boat Show. The show itself ran for nine days with 68,000 attending. The model has now been returned to the Naval Supply Depot at Seattle where it is to be outfitted.

SELECTED AIR RESERVE



A WEEKEND WARRIOR crew from VP-874, NARTU Alameda, takes training duty at NAS Moffett Field. Over 100 officers and men from off in a Neptune on an ASW mission while on two weeks of active the squadron participated. LCdr. R. V. Dove is at the controls.

Honor Man at NATTC Jax

Roy L. Durham, AE1, won the distinction of Honor Man in his class of 30 at the AE "B" School at NATTC JAX. He averaged 88.17 for a 27-week course in aviation electronics. He is now serving at NAS NEW ORLEANS.

Durham has served four years of active duty, together with 30 months as a Weekend Warrior with VP-741 at NARTU JACKSONVILLE.



CHIEF PHOTOGRAPHER'S MATE Henri Silz was the speaker for the International Conference of Professional Photographers May 6 at the New York Statler. At NAS New York Silz supervises the photographic unit.

Together

Following a recent exploratory visit to NAS NEW YORK's Naval Air Intelligence Reserve Unit 831 by key intelligence officers of the Army's 24th Military Intelligence Battalion, located at Miller Army Air Field, Staten Island, N.Y., an inter-service cooperative training program was outlined.

Commander Hugh Robertson, skipper of NAIRU 831, and Captain William Duncan, C.O. of the Army unit, agreed that such a training program would be beneficial.

The two units are now working together with the Navy furnishing the facilities for both Army and Navy personnel. Their primary objective is to improve photo-interpretation, radar image analysis and other intelligence production techniques.

Four Modes of Travel in One Day

Explorers of the Sea Explorer Ship #67 from Little Creek Amphibious Base used four different methods of transportation in a single day; that is, if you count your feet as a mode of transportation.

They arrived aboard NAS NORFOLK in automobiles, boarded the Air Reservist C-54 aircraft and were flown to Charleston, S. C. The Weekend Warriors manned the aircraft as part of their regular training. After arriving at Charleston, the Sea Explorers took custody of a surplus Navy mine

sweeping boat and brought it to Little Creek, Va., to use as a training vessel.

Wings for Olathe Navigator

LCdr. Ralph E. Dicker of VR-881 NAS OLATHE, received his Naval Aviation Observer-Navigator Wings of Gold from his squadron skipper, Cdr. J. L. Evans. A 19-year Navy veteran, LCdr. Dicker rose from the ranks to earn an ensign's commission in 1953. He is the first officer in the



NARTU NORFOLK airlifted Sea Explorers of Little Creek to Charleston, S.C., so that they could take custody of a surplus Navy mine-sweeping boat (MSB-1) and bring it back to Little Creek to use in their unit's training.



SPRING CLEANING was the order of the first warm spring day at NARTU Lakeshore when Weekend Warriors "turned to" on a Tracker.

CNAResTra command to win the observer wings under the present training program.

Perry's Descendant Sworn in

C. Arthur James Perry, direct descendant of Commodore Oliver Hazard Perry, has been sworn into the Naval Air Reserve as a member of the Aviation Reserve Officer Candidate (AVROC) Program at Los Alamitos.

When young Perry joined the Navy, he continued a 200-year family tradition. His ancestor, Oliver Hazard Perry, himself the son of a Navy Commander, became famous in Naval history for his heroic action in the War of 1812. He led a fleet of volunteer sailors against a 60-gun well-trained British armada on Lake Erie. Perry defeated the British and sent his famed message, "We have met the enemy and they are ours." At least one member of the Perry family is

believed to have been serving in the Navy during the past 200 years.

As a Weekend Warrior, the latest Perry to enter the Navy is assigned to VS-772. He is a student at Grossmont College, El Cajon, Calif. The next two summers he will go to Pensacola for preflight training. When he receives his A.B. degree, he will be commissioned an Ensign and will begin flight training at Pensacola.

High Scoring

Records were set by VF-727 on its two-weeks active duty for training. LCdr. Julian Hansen, the Glenview-based squadron's C.O., reported that three of the 14 A-4B Skyhawks made the 1600-mile flight to Guantanamo on a non-stop basis. This first, by a Reserve fighter squadron, was accomplished by refueling from an A-4B tanker between Alma, Ga., and Daytona Beach, Fla. The pilots of the

three Skyhawks, LCdr. Hansen, Lt. Paul McNergney and Lt. Stuart Sherman, as well as other pilots of the squadron, achieved 100% pilot qualifications in rockets, bombing close air support, Sidewinder missiles, instruments, in-flight refueling, night flying and low level navigation over water.

The refueling aircraft was flown by Lt. Fred Meyers, VF Training Officer at Glenview. The other 11 planes stopped at Jacksonville to refuel.

VF-727 pilots worked with carriers, the USS *Randolph* and USS *Essex*, in intercepting simulated bogeys and participated in close air support exercises with ANGLICO, a combined Army, Navy and Marine Ground Team, and VU-10.

Lt. McNergney also won the Navy E for excellence in bombing, along with Lt. R. V. Johnson. A rocket delivery E was also awarded Lieutenant Commander Don Gunderson.



REAR ADMIRAL John Bulkeley (2nd from R) commended pilots for E in weaponry: Hansen, Gunderson, McNergney, the Admiral, Johnson.



MISS UNIVERSE, Corinna Tsopei, arrived at NARTU Norfolk just in time to don the famous "white hat" and muster the duty section.



IN CIVVIES OR UNIFORM, A. H. Digges, ADCS, serves NARTU Norfolk: as civilian, in Hangar LP-12; as a Reservist, with VS-861.

AT SEA WITH THE CARRIERS



ROCKETS ARE UNLEASHED against a practice target in the South China Sea from an A-4 Skyhawk piloted by Lt. F. G. Spellman. The A-4 is assigned to VA-22, embarked in USS Midway



MIDWAY recon jet flies over a North Vietnamese PT boat blasted by carrier planes.

PACIFIC FLEET

MIDWAY (CVA-41)

American and South Vietnamese generals have been going to sea in *Midway* to get a close look at the carrier's role in the war in Vietnam.

Ranking Army and Air Force commanders and advisors stationed in Saigon were included in groups that landed aboard CVA-41 for indoctrination visits. They were greeted by Rear Admiral William F. Bringle, ComCarDiv Seven, and *Midway's* C.O., Captain James M. O'Brien.

The visitors watched launches and recoveries, inspected the ship, and left "with a clearer understanding of the way aircraft carriers are helping to fight communist aggression," a *Midway* report said.

BENNINGTON (CVS-20)

Rear Admiral Robert A. Macpherson, ComASWGru Five aboard *Ben-*

nington, received the Medal of Cloud and Banner during ceremonies in Taipei, Taiwan. The presentation was made by General Peng Ming-Chi, Republic of China General Staff. Rear Admiral Macpherson received the award for "especially meritorious service" as commander of Task Force 72 from November 1962 to August 1964.

BON HOMME RICHARD (CVA-31)

Two officers assigned to the staff of Carrier Division Nine received the Navy Commendation Medal with Combat "V" during ceremonies aboard *Bon Homme Richard*. Commander Gordon W. Bailey, Air Operations Officer, and Commander William H. Hudson, Jr., Air Warfare Officer, were honored for their actions during the first Gulf of Tonkin crisis.

The two officers developed strike plans, tactics, and schedules for the aircraft that repelled North Vietnamese PT boats sent to attack the destroyers *Maddox* and *C. Turner Joy*. They also formulated plans and sched-

ules for responsive strikes against North Vietnamese support facilities. Rear Admiral W. S. Guest, ComCarDiv Nine, presented the medals.

Bonnie Dick's 109,000th and 110,000th arrested landings were recorded off southern California by Lt. D. W. Cowles of VF-191 in an F-8 *Crusader* and LCdr. J. C. Holland of VA-195 in an A-4 *Skyhawk*.

CONSTELLATION (CVA-64)

In response to a warm welcome by residents of Bremerton, Wash., an open house was held aboard *Constellation* by the CVA's C.O., Captain George H. Mahler. Some 10,000 persons accepted the invitation to visit. *Connie* is in the Puget Sound Naval Shipyard for an extensive overhaul.

HORNET (CVS-12)

Carquals for jet, fixed-wing, and helicopter squadrons were conducted aboard *Hornet* while the CVS was operating out of home port, Long Beach,



A CARRIER'S "Angel" is shown in action as a UH-2A Seasprite hovers over a downed pilot. Helicopter is from HU-1 aboard USS Hancock.



LOADED with a cargo of aircraft, ammunition, equipment, and personnel destined for Okinawa, USS Valley Forge steams away from Hawaii.

after completion of underway refresher training. More than 1,500 arrested landings were recorded, and an EA-1F Skyraider from VAW-11 made *Hornet's* 85,000th arrested landing.

ORISKANY (CVA-34)

An HU-1 Det. Golf helicopter left *Oriskany* while the carrier was at Barber's Point, Hawaii, to pick up a Navy Seabee injured in a construction accident on the island of Kahoolawe. After ferrying R. W. White to Tripler Army Hospital, the helo returned to *Oriskany*. Its crew included Ltjg. Frank C. Koch, pilot; Ens. Gary L. French, copilot; and Carl Hankins, AT2, crew member. These same two officers piloted the helo that rescued *Oriskany* flier Ltjg. R. A. Bengston when he was forced to eject from his F-8 *Crusader* at sea during Exercise *Silver Lance*.

The Air Force took the X000th landing spotlight aboard *Oriskany* when exchange pilot Maj. Robert G. Bell of VF-162 made it No. 89,000.

RANGER (CVA-61)

VA-94 personnel think their C.O., Commander Paul A. Peck, has a record to claim. He made two consecutive thousandth landings—*Ranger's* 69,000th and 70,000th—which the squadron says has never been done before.

KEARSARGE (CVS-33)

Captain Merle M. Hershey, former C.O. of the seaplane tender USS *Salisbury Sound*, has relieved Captain Charles P. Muckenthaler as CVS-33's skipper. Captain Muckenthaler has reported as Chief of Staff for Commander Fleet Air, San Diego.

KITTY HAWK (CVA-63)

An 8½-month overhaul completed, *Kitty Hawk* has undergone carquals and refresher training off California after returning to home port, San Diego, with the newest equipment.

Puget Sound Naval Shipyard workmen provided *Kitty Hawk* with the most up-to-date tactical maneuvering system afloat, the Naval Tactical Data System (NTDS) installed in the CVA's Combat Information Center. NTDS makes routine computations so much faster than human beings that "an entire task force can be coordinated almost to the point of operating as one unit," a report from the CVA said.

CVA-63 also has a new Integrated Operational Intelligence Center

(IOIC) that combines with the RA-5C *Vigilante's* IOI system to "provide the most modern reconnaissance complex in the world," the carrier reported. An Airborne System Support Center and improved radars were also installed.

VALLEY FORGE (LPH-8)

Commander Michael T. Lulu, now assigned to LPH-8, has received the Navy's Commendation Medal for meritorious service as training officer for the Atlantic Fleet's Fleet Air Wings Staff from October 1962 to September 1964. *Valley Forge* C.O., Captain C. N. Conatser, made the presentation for the Secretary of the Navy.

YORKTOWN (CVS-10)

A seven-month WestPac cruise completed, *Yorktown* has returned to home port, Long Beach. The CVS spent most of her time with the Seventh Fleet providing ASW support for units operating in the South China Sea.

The deployment was the "Fighting Lady's" fifth since she was recommissioned a CVS. Squadrons from assigned CVSG-55 logged more than 10,000 fixed-wing landings and 4,200 helo landings while *Yorktown* was deployed and ran up the ship's total arrested landings to 107,000-plus. *Yorktown* took on more than 12,000,000 gallons of fuel during replenishment periods.

Yorktown's C.O. is Captain R.S. Osterhoudt, a veteran pilot who flew from the carrier more than 20 years ago. She is flagship for ComASWGru Three, Rear Admiral K. L. Veth.



WHO PULLED the plug? That's what Navy Diver Hamp Knight wants to know as he stands beneath USS Kearsarge's massive hull. Kay was in drydock in Long Beach, so this time a carrier had reason to be high and dry.



UNDERWAY for the Dominican Republic, USS Boxer answers a call to aid in the evacuation of Americans from revolt-torn Latin nation.



NAVYMEN CARRY a wounded U.S. Marine across Boxer's flight deck as a corpsman administers first aid. The Marine was shot in the leg.

ATLANTIC FLEET

BOXER (LPH-4)

More than 1,000 American refugees endangered by the revolt in the Dominican Republic were evacuated to *Boxer* in a one-week period after the LPH was sent to answer an appeal for assistance from the U.S. Embassy.

The first Americans and others who wanted to escape the revolt were brought aboard *Boxer* after the civil war caused law enforcement to disintegrate and the safety of U.S. citizens could no longer be guaranteed. *Boxer* crew members provided food, medical aid, hospital facilities, and sleeping spaces before the refugees were taken to San Juan.

"This was a new experience for

Boxer officers and enlisted men," the LPH reported. "They acted as baby sitters, luggage porters, stewards, translators. They changed diapers, fed babies, played catch with youngsters." Berthing the refugees caused hardships for *Boxer* crew members, the report said, "but they were minute compared with those of the evacuees. Each person who came aboard had his own tale of crisis to tell, and each seemed more harrowing than the one before."

Boxer reported that many of the Americans went for days without food and water. Getting shot at was commonplace. Children were separated from parents, and husbands lost contact with wives.

One woman's children had been missing two weeks, the report said. "Her tears disappeared when she found them aboard *Boxer*."

AMERICA (CVA-66)

America has departed Norfolk for her first extended period in the Caribbean. Scheduled to be away from home port for two months, crew members of the Navy's newest CVA were to receive their first ORI and test-fire the carrier's *Terrier* missiles. With Captain Lawrence Heyworth, Jr., as C.O., *America* has CVW-6 embarked.

FRANKLIN D. ROOSEVELT (CVA-42)

FDR was to deploy in June to take the place of the Pacific Fleet's *Bon Homme Richard* in the Mediterranean. *Bon Homme Richard* originally had been scheduled to swap oceans with the Norfolk-based *Independence*, but a change will keep *Bonnie Dick* a unit of the Pacific Fleet.



AMERICA CREW MEMBERS going through training at the Naval Operating Base, Norfolk, battle a fire. The new CVA is in the Caribbean.



PILOTS AND CREWMEN of the U.S. Army's 229th Assault Helicopter Battalion wait to fly off USS Guadalcanal into Dominican Republic.



USS PRINCETON crew members get together for a flight deck spell-out *the South China Sea. Steaming with Princeton are the USS Besar that honors the ships of Task Groups 76.5 and 79.5, operating in (APA-237), USS Thomaston (LSD-28), USS O'Bannon (DDE-450).*

CVA-42 entered the Norfolk Naval Shipyard for repairs to rudder blades after carqualing student pilots off Florida's East Coast. The CVA's 139,000th and 140,000th arrested landings were made in this period.

Ens. Donald T. Jackson was rescued by an HU-2 UH-2A *Seasprite* after his T-28 *Trojan* crashed when he took off from *FDR*. The *Seasprite's* crew included Ltjg. Oscar M. Harper, pilot; Ltjg. Douglas E. Behm, copilot; Oliver B. Lambert, ADJ3; and Joseph V. Tomlin, Jr., ADJ3.

Walter Tkacz, AMS1, has received the Navy Commendation Medal for heroism. Assigned to HU-2 aboard CVA-42, Tkacz was honored for diving into the sea and helping an injured survivor of a plane crash.

GUADALCANAL (LPH-7)

Guadalcanal transported personnel of the Army's 229th Assault Helicopter Battalion from Ft. Benning, Ga., to a point off the Dominican Republic after that nation's revolt erupted. The ship is capable of transporting 2,000 troops.

INTREPID (CVS-11)

A mast-less and munitions-less *Intrepid* has entered the New York Naval Shipyard in Brooklyn for a major overhaul. The CVS is due to remain in the yard until October.

Intrepid crew members and some 150 guests were on hand when Captain Guiseppe Macri relieved Captain Joseph

G. Smith as skipper during change of command ceremonies in the ship yard.

ESSEX (CVS-9)

The 125,000th arrested landing aboard *Essex* was recorded by LCdr. John G. McDermott and Ens. John W. Bookhultz in a VAW-12 F-1B *Tracer*.

LAKE CHAMPLAIN (CVS-39)

Crew members of the Navy's last straight-decked carrier marked the ship's 20th anniversary with appropriate ceremonies that included a ball in the ship's hangar deck attended by high-ranking Navy and civilian guests. *Champ* is now flagship for ComCarDiv

20, Rear Admiral Donald M. White, who also skips ASW Group Four. The admiral shifted his flag to CVS-39 from *Intrepid*.

OKINAWA (LPH-3)

Merchant seaman Carlos S. Sabater was transferred to the Public Health Service Hospital in Norfolk after he was flown to *Okinawa* from the SS *Santa Barbara*. Suffering from internal hemorrhaging and shock, the seaman was picked up by an *Okinawa* helicopter after the LPH received a message from the *Santa Barbara* asking for medical evacuation.

Crew members of the helo included Commander Claude C. Coffey, Jr., pilot; LCdr. Kenneth G. Thomas, copilot; Eugene E. Roberts, ADR1; and William R. Selby, ADR2. Lt. Arthur F. Oplinger, *Okinawa's* medical officer, also was aboard.

SARATOGA (CVA-60)

Flying an A-4C *Skyhawk*, Ltjg. K. R. Brust of VA-36 made *Saratoga's* 98,000th arrested landing.

SHANGRI LA (CVA-38)

A man and a boy, lost overnight off Greece in a small boat, were found and returned to Rhodes by a *Shangri La Seasprite* helicopter after a sudden storm drowned the motor in their nine-foot skiff. The two spent a wet, cold night in an island cove before the HU-2 helo spotted them.



ONE OF INTREPID'S anchors gets a paint job. *The CVS is now in the Brooklyn shipyard.*

MEN, MUSCLES, AND MUNITIONS

By Pfc. Chuck Jones, USMC

THE RAYS OF THE MORNING sun glisten off the wings of a Marine Corps A-4 Skyhawk as the little jet attack aircraft lifts from the runway



AIR BOTTLES used to pressurize A-4 pneumatic systems are filled by LCpl. Meister.

at MCAS IWAKUNI, Japan, and swings out over the Inland Sea.

A short time later the same jet sweeps in across a target practice area. From its underside, rockets roar off toward a bullseye. From the nose, 20mm cannon spit shells a hundred a minute and from its belly racks bombs hurtle earthward. Then the pilot pulls the Skyhawk up. His "bite" gone, the flier heads for home and new teeth.

Below, smoke curls from the totally destroyed target.

MCAS IWAKUNI is located on the main Japanese island of Honshu, about 25 miles from Hiroshima. In WW II, the base was a Japanese Naval Air Station. After the war, it was first controlled by Australia, then India, and then Britain. It came under U.S. jurisdiction when the Air Force took it over. Then in 1954, it was passed to the Navy. The station was handed over to the Marines in 1960.

Now, Iwakuni is home of the 1st Marine Air Wing, including Marine Attack Squadron 225 (VMA-225)—to which the Skyhawk and its pilot are assigned.

Just such regular practice as that completed by the VMA-225 pilot became a part recently of a mount-out exercise held by the squadron. Its fliers ran through their paces for visit-



TWO MEMBERS of VMA-225's gun crew fill an A-4's pneumatic system with compressed air.

ing Lieutenant General Victor H. Krulak, Fleet Marine Force, Pacific, Commander. Things went so smoothly that the general said he was convinced 225 A-4's could be launched, make their way to destination, and be quick-



ON THE RUN to get VMA-225 Skyhawk loaded, LCpl. R. J. Benz (L), LCpl. D. L. Daugherty (C), and Cpl. P. Hall move out with a 2,000-lb. practice bomb before pilot takes off on flight.

Photos by LCpl. Rick Lopez

ly ready for payoff runs against any designated targets.

The task of putting the "bite" into the 225 "bark" that earned LGen. Krulak's praise falls to a group of men who didn't have the time to take any bows while he was passing the kudos around. The squadron's 33-man ordnance section was still busy checking firing systems, repairing breakdowns, and getting ready to reload. Their daily routine revolves around that of the pilots, but continues long after the jet jockeys have stabled their mounts.

Mornings begin for the ordnance teams right around first light, when the Skyhawks are wheeled out and fuel tanks are topped off. By 6:30 A.M., while pilots are being briefed, the weapons crews are testing and re-testing rocket racks, giving a final check to the interlocking lugs and

hooks that hold the bombs. One last examination falls on the explosive cartridges which drive a piston forward to hit a releasing mechanism that unlocks the lugs and bolts to eject bombs.

In the 45 minutes they have before 8:00 A.M. takeoff, each five-man team goes over its plane's electrical system with volt and ohm meters to make sure all systems are operating properly. Since there are separate release switches and buttons for every individual function, each must be checked to make



AMMO NEARLY READY as ordnancemen load cans before placing them in VMA-225 Skyhawk.

sure, for instance, that the rockets don't go off when the brakes are released. By checking all wires, the Marines can find out if a current will bypass one point and overload another system, causing a malfunction.

Finally the gun and bomb sights are aligned and checked for accuracy.

Now the *Skyhawk* is pulled to a safety area nicknamed the "bleeding ground," where the craft will be armed and additional checks made. The safety area is set up away from the flight line's main activity to minimize danger. Each five-man crew now operates as a closely coordinated unit, somewhat similar to an infantry squad's fire team. Each man has his position on the aircraft and a certain procedure to follow when he performs his tasks.

Winding 20mm shells into their compartments for the A-4's twin cannon begins the loading process. The rocket men follow and attach their weapons to the wings. At the same time the bomb crew moves in under the center of the *Skyhawk* and hooks explosives to the belly racks.

Loading completed, a last check is

made of all components. If all systems check out, the pilot has an armed and ready jet waiting for him when he comes out of the briefing room. But the link between pilots and the ordnance section isn't broken after the planes are armed. Besides putting a



MARINES JOCKEY ammo cans into waiting A-4. *Skyhawk* fires through 20mm cannon.

rocket onto the plane, each weapons team must keep its pilot up-to-date on its capabilities. Each time a change is made in a weapon, the pilot and his crew get together to discuss the technical variations. This sometimes happens week after week.

With their jets airborne, crews retire from the flight line to the repair shop and armory. There, they work on weapons repair and keep their own equipment in shape. As soon as the jets return, the Marines are back on the flight line for another session with the A-4's. First thing is a follow-up inspection of the aircraft's wiring systems. Then, if a second run is scheduled, the planes must be reloaded.



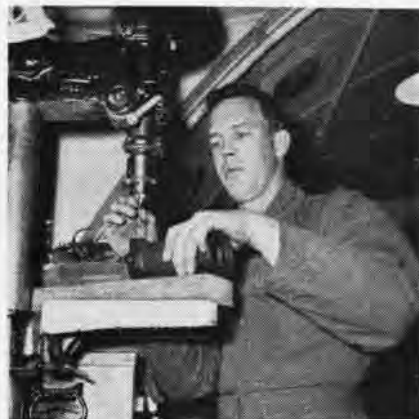
BLAST DEFLECTOR on *Skyhawk*'s 20mm guns is adjusted by Ordnanceman Daugherty.



ORDNANCE SECTION'S tool and supply room NCOIC checks his supplies for spare parts.

The workload for ordnance Marines varies from month to month, but it is always heavy. Aside from the day-to-day test, load, retest, and reload routine, each squadron movement calls for a special effort from the ordnance department. Whenever a strike mission for 225 pilots is slated, an ordnance detail is sent to a forward area for possible reloading tasks.

Recently, at Osan, Korea, the section's men loaded 1,182 bombs, 20 *Zuni* rockets, and thousands of rounds of 20mm ammunition for the squadron's *Skyhawks* as men and planes went through a rigorous test of cold weather training. Over a four-month time span covering the same period, crews put 4,000 bombs into racks, strapped 3,000 rockets onto wings, and added 60,000 rounds of ammuni-



REPAIRMAN Cpl. Leon R. McCurry uses drill press to fix recoil housing for 20mm gun.

tion, 120 *Zuni* rockets, and 24 fire bombs for good measure.

Effort like this is what keeps the section too busy for bowing.

ANTARCTICA



PRECIPITATION IN THE ANTARCTIC IS USUALLY IN THE FORM OF SNOW, SNOW PELLETS, OR SNOW GRAINS. THIS HOLDS TRUE FOR ALL FOUR SEASONS.

RAIN HAS BEEN REPORTED ON ANTARCTIC PENINSULA AND, ON A FEW RARE OCCASIONS, AT STATIONS LOCATED NEAR THE ANTARCTIC CIRCLE.

LITTLE AMERICA ON SEVERAL OCCASIONS HAS REPORTED FREEZING RAIN OR DRIZZLE.



HOWEVER, RAIN HAS NEVER BEEN OBSERVED AT Mc MURDO SOUND.

PRECIPITATION FALLS USUALLY IN THE FORM OF LIGHT TO MODERATE SNOW SHOWERS.

THE INTENSITY OF PRECIPITATION IN THE ANTARCTIC IS DIFFICULT TO DETERMINE BECAUSE OF BLOWING SNOW ASSOCIATED WITH THE FALLING SNOW.



IT IS ROUGHLY ESTIMATED THAT TWELVE TO SIXTEEN INCHES OF WATER EQUIVALENT OF SNOW FALLS ANNUALLY AT McMURDO SOUND.

W. J. Garner

AIRCRAFT ICING OVER THE CONTINENT IS INFREQUENT, BUT WHEN IT DOES OCCUR IN THE CLOUDS, IT IS USUALLY LIGHT TO MODERATE RIME.



sensors. Fire control information is processed by a solid-state, high-speed, general-purpose digital computer as the output is visually displayed to the missile control officer.

The missile itself will be equipped with a solid-propellant rocket motor. The missile is assembled in sections. This makes it possible to handle it as a complete unit or to break it down for easy shipboard checkout and handling.

To minimize maintenance problems, built-in, self-test features are incorporated. These permit rapid system testing and isolation of faults to replaceable modules.

The *Phoenix* program currently is in the research, development, test and engineering phase. At the Naval Missile Center, LtCol. Chester J. Poppa, USMC, is *Phoenix* program manager. Duain Barnes of NMC Aerospace Operations Department was test conductor for the first *Phoenix* test.

Hughes Aircraft Company is prime contractor to the Navy for the missile, the airborne missile control system, and associated special support equipment. Bart Warren of Hughes Aircraft piloted the aircraft used in the first test. Major sub-contractors are Litton Systems, Inc., of Los Angeles, for the computer, controls and display; and Rocketdyne, McGregor, Texas, for the rocket engine.

Marines Design New Tool To be Used in Pre-Flight Check

SSgt. F. J. Garner and Cpl. W. P. Pratt, Jr., stationed at MCAS CHERRY POINT, received letters of appreciation from the C.O. of Marine Aircraft Group 24, Colonel H. J. Finn, in recognition of their designing a special tool used in pre-flight inspection of in-flight refueling probes.

The tool, designed to provide a quick and accurate inspection of the sleeve assembly at the tip of the refueling probes, will cost about \$25 and require ten man-hours to produce. Through its use, operating squadrons will save approximately 20 man-hours a week and eliminate the possibility of damaging machine surfaces. Previously, mechanics had to force the sleeve assembly open with a screwdriver.

Originally designed and built last November, the invention has met the approval of BuWEPs and is being readied for Fleet distribution.

PHOENIX PORTION PASSES AIRBORNE TEST

THE NAVY has successfully completed the first airborne test of a portion of the *Phoenix* long-range, air-to-air missile system. The missile is being developed as an armament for the F-111B (see page 11), the Navy version of the bi-service interceptor.

The test, an ejection of a dummy *Phoenix* missile, was conducted by the U.S. Naval Missile Center in the sea test area of the Pacific Missile Range, Point Mugu, California. According to Captain Carl O. Holmquist, Cen-

ter Commander, the dummy missile separated safely from the launching aircraft, an A-3A *Skywarrior*, and maintained a stable attitude during its unpowered descent.

The *Phoenix* system is designed to provide air combat superiority over distant objective areas, such as in beachhead landings, as well as over Navy task forces. The system consists of the airborne missile control system, the missile, and the launcher.

The control system contains target

PERSONAL GLIMPSES

Editor's Corner

What's in a Name? The station brig at NAAS MERIDIAN, Miss., has been converted to new use. It is now a nursery for tots whose mothers are off bowling, working or shopping. In announcing the change of "scenery," the station reported:

"No one likes being in the brig, but since the conversion, the children do not mind a sentence once in a while. Lollipops are handed out for good behavior. The former 'bull pen' is now the nursery's 'play pen.' The SP guard room serves as an excellent nursery, as does the adjacent maximum security cell. To the rear of the nursery, in the exercise yard, a 12-foot-high fence topped with barbed wire does a fine job preventing 'breakouts.'"

Wives of student officers decorated the interior to suit the new tenants. The building, although intended for a brig, was never used for that purpose.

CLEOPATRA AND THE ASP. There is a lot that can be said and a lot that shouldn't be said about movies at sea. Suffice it to say that the crew aboard the *Midway* packed the mess decks to see the advertised movie, *Cleopatra*. Although most aboard had already seen the picture, after tense operations off the coast of Vietnam, they were ready to see it again. As the house lights dimmed, the launching jets were nearly drowned out with moans as the 1934 edition of *Cleopatra* starring Claudette Colbert creaked across the screen.

What? Santa Retired? NAS TWIN CITIES, Minnesota, held retirement ceremonies for Lem Mader, ADCS, who for the past 12 years has served as "one of Santa's best typecast and most devoted helpers." Chief Mader has donned Santa's clothes each year for the station Christmas party and has played the same role at orphanages, hospitals and clinics around the Minneapolis area. Associated with the TAR program for most of his 20-plus years of service, Chief Mader served with line maintenance division and as manager of two station clubs during his Twin Cities tour.

BROTHERS MEET. Part of a fam-



'ARE YOU MY BROTHER?'

ly of 10 children orphaned 18 years ago, Charles Smith and his brother, John Dawson, met for the first time as adults aboard the USS *Canberra* in the Western Pacific. Smith and Dawson had been separated as children and adopted by families 100 miles apart. (This accounts for the different names.) Only after each had joined the Navy did they track down each other through letters. Dawson, a Radioman Seaman, was aboard the USS *Ranger* and Smith, a Gunner's Mate Seaman, was aboard the *Canberra*. An HS-4 helicopter brought the two men together briefly for the first meeting. Now the two are trying to find the remaining members of the family.

Mechanized Marine. Then there's the one about the Marines who didn't like to hike—an entire squadron.



LINE TRANSPORTATION

VMFA-53, attached to MAG-16 at San Francisco, decided that the trek back to the ready room from the flight line was too much, so they bought a bicycle. That's CWO John Favaron pedaling back after a supersonic ride in the back seat of the F-4B.

Records are Meant to be Broken. While steaming through the South China Sea on some very serious business, the officers of the USS *Princeton* (LPH-5) took time out for some lighthearted fun. As a sort of contrariety of the X000th landing records of Naval Aviators, the following recognition (one or more cupcakes each) was bestowed upon ship's officers:

Ship's Boatswain—for ordering the 37,000th sea watch since "the Sweet Pea" was designated an LPH.

Medical Officer—for having given the 48,973rd plague shot.

Commanding Officer—a special ribbon with an exclamation mark in lieu of a Gold Star "for keeping the ship at sea for ridiculously long periods."

AND NO PUMPKIN COACH. According to the USS *Shangri Lu's* paper *News Horizon*, "Liberty in the Mediterranean is sometimes known as 'Cinderella Liberty' because it usually expires about midnight."

Thought for the Fourth. Chaplain J. T. Dimino in the USS *Saratoga's* ship newspaper, *The Fighting Cock*, writes: "One of the finest words in the English language—square—is being bent out of shape. To many people, a 'square' is a man who never tries to get away with it, a Joe who volunteers when he doesn't have to, a guy who gets his kicks from trying to do something better than anyone else, a boob who gets so lost in his work that he has to be reminded of quitting time.

"Our early national heroes were all squares, but imagine what their statements might have been:

"*Nathan Hale*—'Me spy on the British? Do you know what they do with spies they catch? They hang 'em.'

"*Paul Revere*—'Me ride through every village and town? Why pick on me? Am I the only man in Boston with a horse?'

"*Patrick Henry*—'Sure I'm for liberty. But we've got to be realistic. We're a small outfit. If we start pushing the British around, someone is going to be hurt.'"

LETTERS

Kilgore was There

SIR: On page 33 of the May 1965 issue of *NA News*, mention is made that the USS *Okinawa* (LPH-3) made the first visit "to the Fort Lauderdale, Fla., area by a Navy ship since 1948." Please be informed that USS *Pecatonica* (AOG-57) visited Fort Lauderdale in September 1960. In fact, she hauled water to Key West after the hurricane of 1960. (I know because I was aboard her.) I was also aboard the USS *Tutuila* (ARG-4) which visited Port Everglades in 1962. I also know of numerous other Naval Reserve ships that visited the same port in the last few years (plus an ARS homeported there).

Please accept this as a correction, not criticism, for I enjoy your news very much.

NICK KILGORE, YN1

Navy Recruiting Sub-Station
Syracuse, N. Y.

† *Okinawa's* press release claimed that LPH-3 was the first "carrier" to visit Fort Lauderdale since 1948. The Editor, being technically oriented, changed *carrier* to *ship*. The USS *Okinawa* is an Amphibious Assault Ship, not a carrier. We agree that she was not the first SHIP to visit there. Obviously.

More on Insignia

SIR: I enjoyed Commander Keith Boyer's collection of Naval Aviation insignia in the April issue of *Naval Aviation News*.

I wonder whether he has an epaulet like the one in the enclosed snapshot? If not, and if he would like one, I will be glad to send one to him. I have two.

My first commission, dated March 26, 1918, was as an Ensign in the Naval Reserve Flying Corps. Instead of stars, we wore miniature aviation insignia above the stripe on our



epaulets. I find that many Naval Officers nowadays do not know that such a Corps ever existed. My Lieutenant (JG) commission, dated October 1, 1918, was also in the Naval Reserve Flying Corps.

RALPH S. BARNABY
Captain, USN (Ret.)

2107 Chancellor Street
Philadelphia 3, Pa

Cruisebooks?

SIR: In my Navy days back in 1949-1953, I started a collection of cruisebooks. I have a nice collection now and would like to enlarge it. Are there any other collectors who would exchange duplicate copies? I have a few duplicates myself and would like to make exchanges.

Cruisebooks are like high school yearbooks. There is a sentimental attachment of the owners. That's probably why they are so hard to come by. I could send anyone desiring to exchange a list of the cruisebooks I have in my collection. I would like to hear

from collectors in your reading audience.

WILLIAM E. POLCSA, EX-RD3, USN
15 Winona Way
No. Weymouth, Mass. 02191

NAVAL AVIATION FILMS

Among the latest motion picture films released by the Film Distribution Division, U.S. Naval Photographic Center, the following should prove of particular interest.

MN-8364B (unclassified) *Liquid Oxygen—Safe Handling and Storage*. Characteristics of LOX. Transfer procedures from storage to trailer to aircraft converter. Purity tests with mine safety appliance and spectrophotometer. 25 minutes.

MN-9606 (unclassified) *Pacific Frontier*. Responsibilities of Pacific Fleet and how they are met. ASW, submarine warfare, carrier operations, MAAG in Vietnam, Taiwan Patrol Force, People to People Program, and Far East liberty. 28 minutes.

MN-9996D (confidential) *Sidewinder Mk30—Theory of Operation (U)*. 9 minutes.

MN-10033 (confidential) *Electronic Countermeasures—Emission Control (U)*. Use and advantages of proper ECM tactics. Preparation, proper display, and surveillance of EMCON plan (U). 25 minutes.

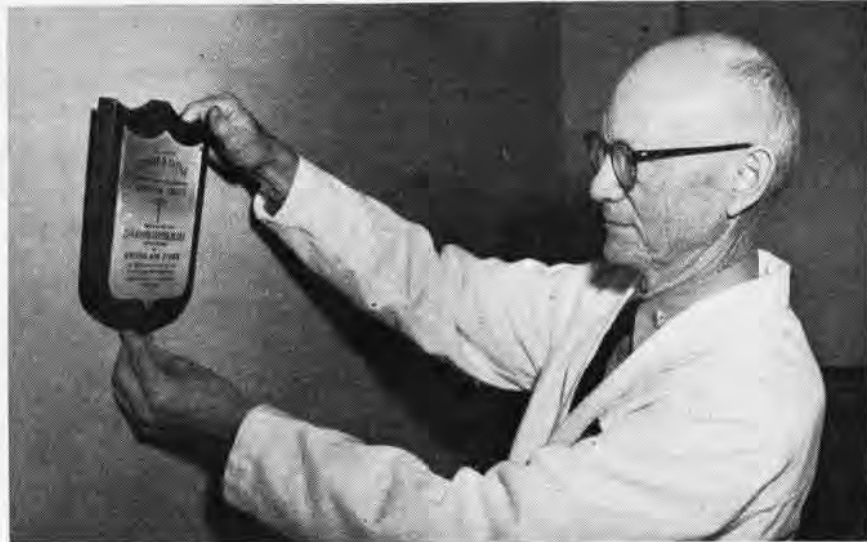
MC-10185 (unclassified) *Flight Deck*. Transit of USS *Franklin D. Roosevelt* (CVA-42) to Mediterranean, 1964. Internal Navy use only. 60 minutes.

MA-10115 (unclassified) *Radar Principles—Pulse Doppler Radar*. Doppler phenomenon; how coherent and noncoherent pulse doppler radar systems provide battlefield vision to detect moving men and vehicles. 20 minutes.

Instructions for obtaining prints of newly released films are contained in the widely distributed OPNAV Instruction 1551.1C.



TWO NAVY specialists in aviation medicine were honored during the 36th annual Scientific Meeting of the Aerospace Medical Association. Captain Richard E. Luebes (L), head of the Aeromedical Department, Naval Aviation Safety Center, Norfolk, received the Harry G. Mosely Award, given annually for the most outstanding contribution to flight



safety. Captain Ashton Graybiel, Director of Research, Pensacola Naval School of Aviation Medicine, hangs the Arnold D. Tuttle Memorial Award on his office wall. It is given annually for original research that makes the most significant contribution toward solving a challenging problem in the growing field of aviation medicine.



VF-103, commissioned at NAS Cecil Field in May 1952, is based at NAS Oceana and is part of CVW-8. The squadron returned last spring from a Med cruise aboard USS Forrestal. Having flown F-8's, the 'Sluggers' are now transitioning to the F-4 Phantoms at NAS Key West. Their present C.O. is Cdr. Joseph S. Elmer.





SIDE BY SIDE TEAMWORK



Flight Officers fly, fight and work side by side with Naval Aviators in the exciting world of Naval Aviation. As bombardiers, ECM evaluators, controllers, tactical coordinators, navigators, photographer-navigators and reconnaissance navigators, Flight Officers are members of a team that has responded capably in a variety of situations, hot and cold. There's a continuing need for outstanding college men. For information on Naval Aviator and Flight Officer training, see any Navy Recruiter or the Officer Programs Officer at any Naval Air Station or Naval Air Reserve Training Unit.

NAVAL AVIATION

NEWS