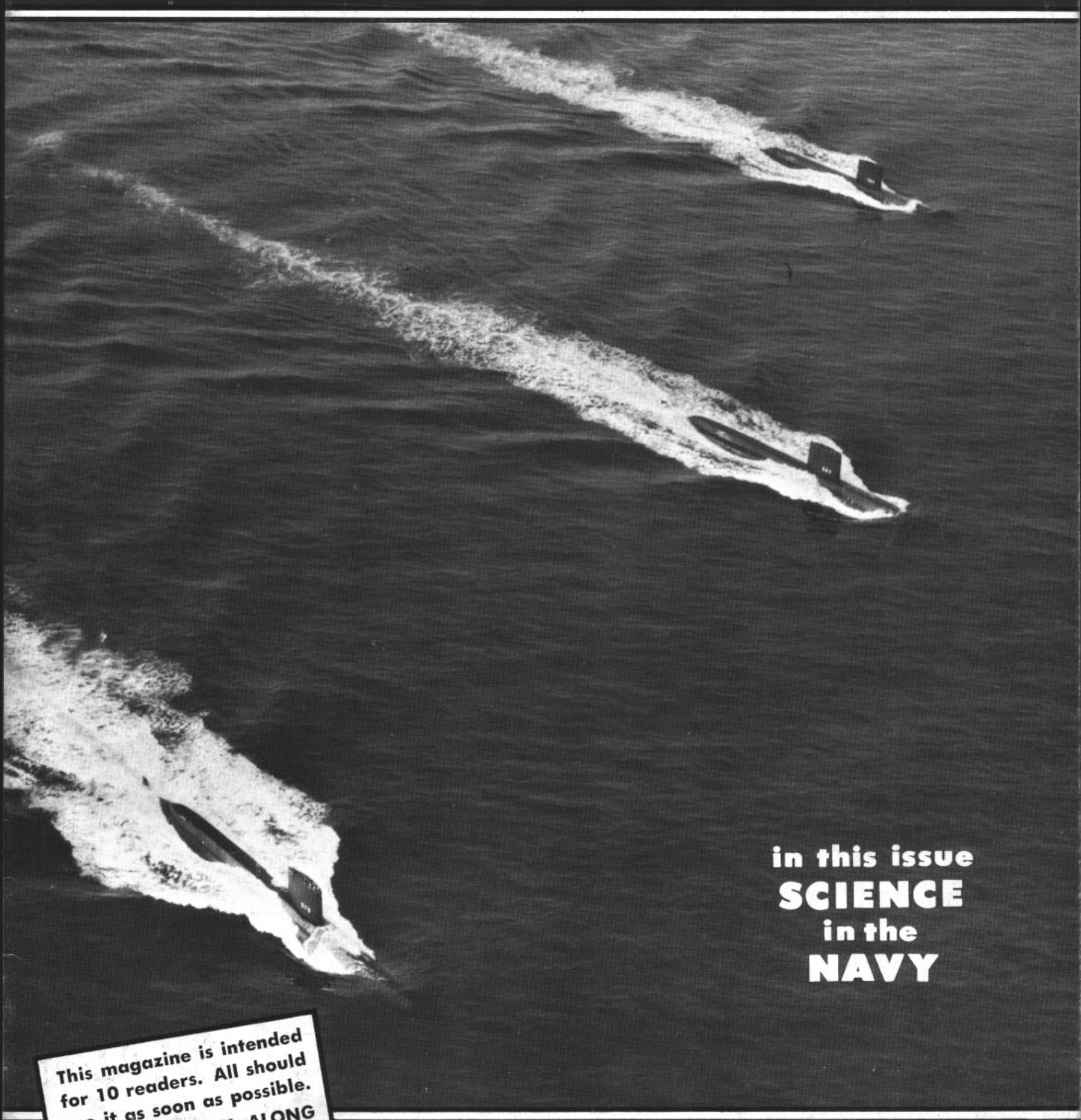


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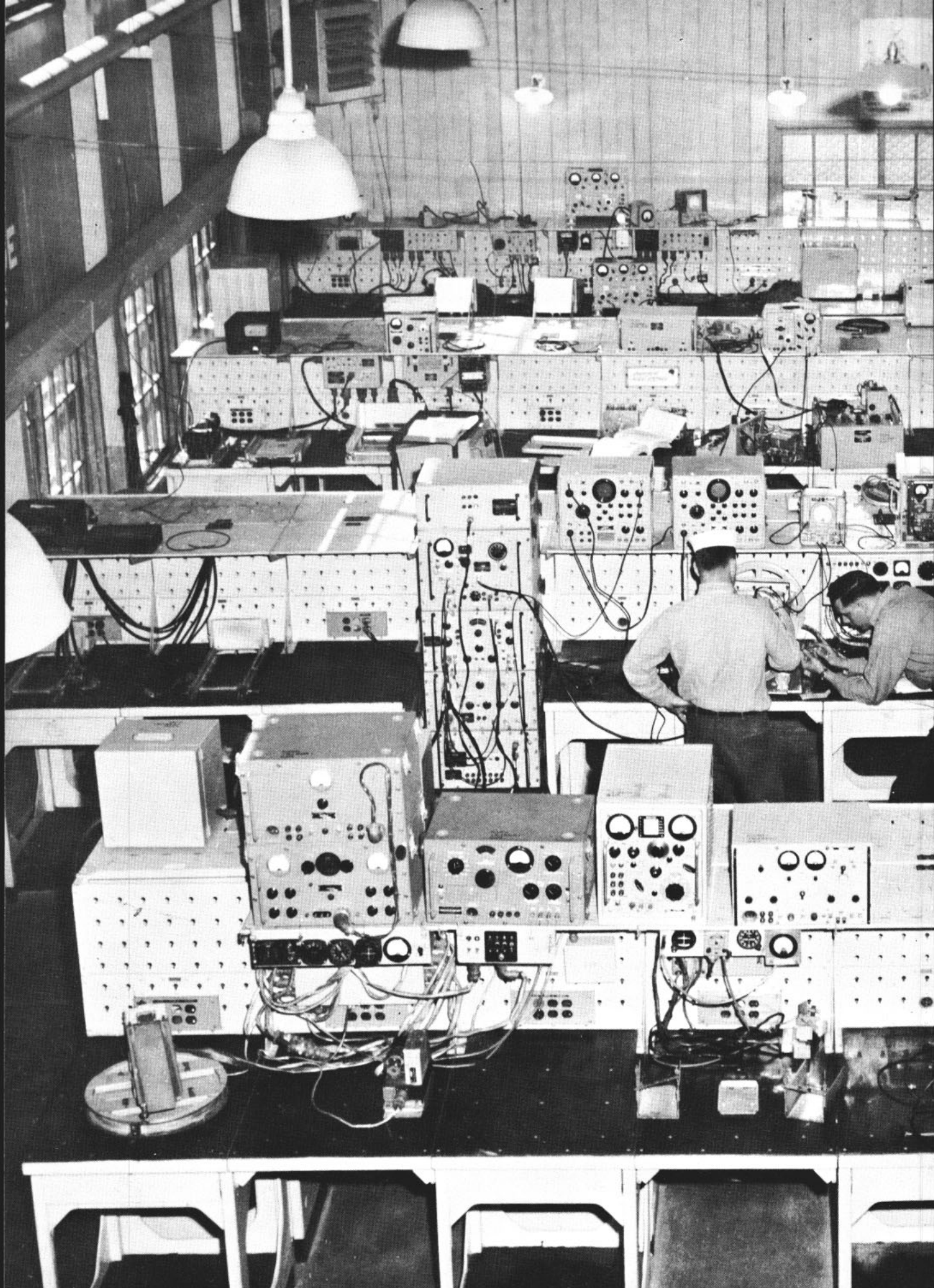
THE BUREAU OF NAVAL PERSONNEL INFORMATION BULLETIN



in this issue
SCIENCE
in the
NAVY

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for 10 readers. All should
see it as soon as possible.
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MAY 1961



ALL HANDS

THE BUREAU OF NAVAL PERSONNEL INFORMATION BULLETIN

MAY 1961

Nav-Pers-O

NUMBER 532

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The Chief of Naval Personnel

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The Deputy Chief of Naval Personnel

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• **FRONT COVER: UP AND ATOM** — Three nuclear-powered submarines, the end product of naval research, cruise on the surface during ASW exercises in the Pacific. Sailing together are (from top to bottom) USS *Seadragon*, SS(N)584, USS *Sargo*, SS(N)583, and USS *Swordfish*, SS(N)579.

• **AT LEFT: MASS REPAIR** — Navy technicians of the Naval Aircraft Maintenance Department of Iwakuni Marine Corps Air Facility in Japan, are constantly on the job in this shop keeping aircraft radio and radar gear in top shape.

• **CREDITS:** All photographs published in ALL HANDS are official Department of Defense photos unless otherwise designated.

Naval Research

EARTH SATELLITES, rockets to outer space, voice communications via the moon, and nuclear power are as commonplace to scientists and engineers at the Naval Research Laboratory in Washington, D.C., as a chipping hammer or heaving line is to Navymen at sea.

Although a good share of the research being done at NRL deals with subjects that are a little above our heads, we, as laymen, are still interested because they will undoubtedly affect our lives and our future careers in the Navy.

Some of the research and development work that has been done—or is being done—at NRL, however, is part of our Navy life today. NRL scientists have developed, and are still improving, such items as a heaving line and monkey fist that glows in the dark, a new kind of paint that makes Navy airplanes more visible while in flight, an improved type of gas mask, equipment for the combat information center, dye markers and shark repellents.

Although these are only a few of the items that have been developed at the Naval Research Laboratory over the years, it does give you some idea of the type of work done there.

In short, NRL projects range from the depths of the ocean to outermost space.

THE MEN AT NRL have but one goal: To make the Navy better through research. And research does bring the answers, usually. Sometimes, however, while investigating in one field, a scientist stumbles onto another discovery, possibly even more important than the one on which he is working. This sort of happening is sometimes called an accident, but more appropriately should be called *serendipity*, which, according to the dictionary, means: "The gift of finding valuable or agreeable things not sought for."

Perhaps one of the more important findings in recent history which logically falls into this category happened back in 1933. It seems that a scientist named Leo C. Young, while studying transmitter key clicks, made certain observations which later led to the pulse method of echo ranging being used with radio-frequency for the detection of aircraft.

From this incident was developed Radar (RADio Detecting and Ranging) as we know it today or—perhaps even more important—as we

knew it during World War II.

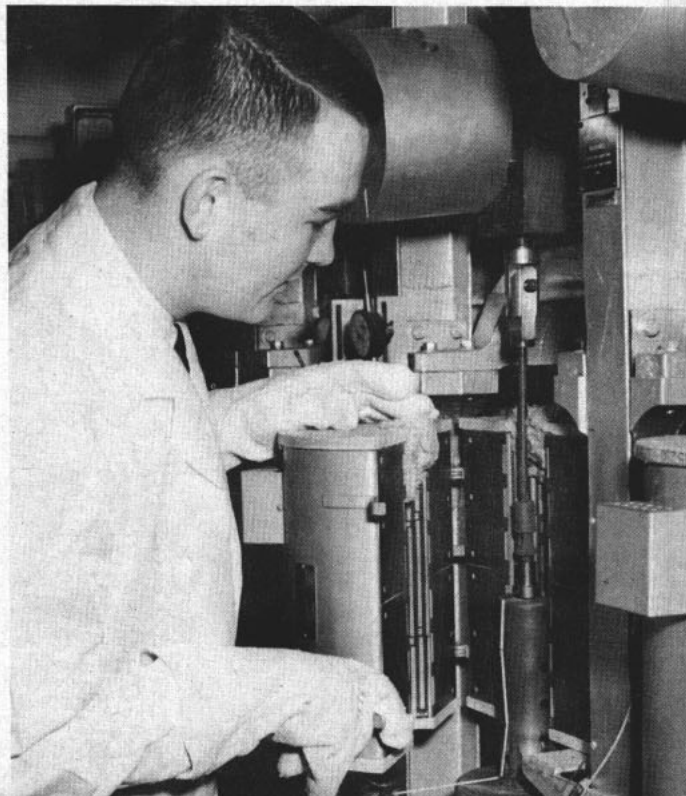
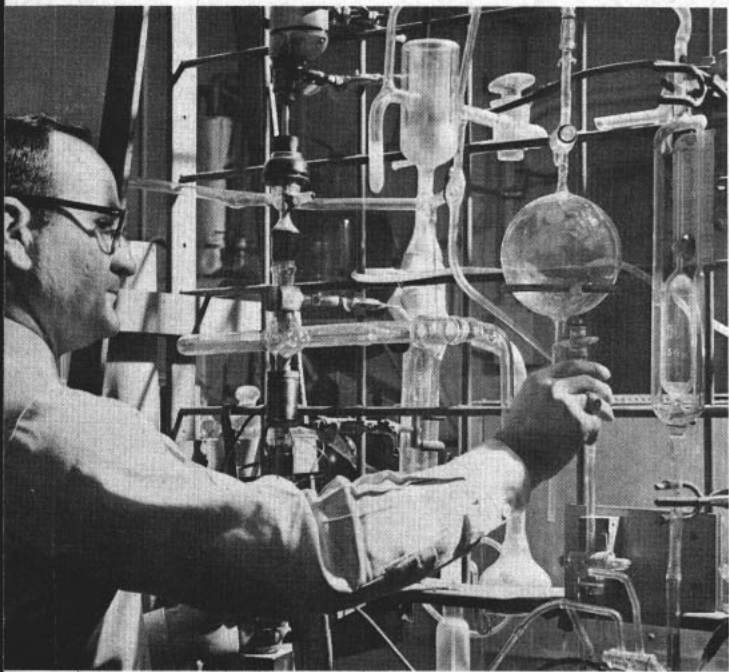
Another such accident that now allows Washington, D.C., to communicate directly with Hawaii, via the moon, occurred when a scientist was allowed to bounce some radio signals off the moon. He found during these tests, which began in 1951, that signals relayed off the moon were clearer than those passed over the telephone.

Because of these early tests, messages are now sent regularly from a station at Annapolis, Md., to Hawaii. A signal makes the 480,000-mile trip from Annapolis to the moon, and thence to Hawaii in some two and one-half seconds.

Moon relay does have its limitations, however. For one thing, the moon must be electronically visible from both the transmitter and receiving antennae at the same time. For this reason, the system can only be used during certain hours.

This same limitation, however, also makes the system extremely jam resistant. First of all, high-power signals are needed, and secondly, the jamming can only be accomplished by another station within sight of the moon at the same time as the receiving station.

METAL MEN—Metallurgists at NRL are working on new and better metals for Navy ships, aircraft and space vehicles.



Lab

Rear Admiral Frank Virden, Assistant Chief of Naval Operations (Communications), has suggested that this same relay system may someday provide simultaneous worldwide television service.

EVEN MORE RECENTLY, serendipity led scientists to develop a coating for the metal columbium (ever heard of it?) that allows it to withstand extremely high temperatures. The new process may provide better metals for use in gas turbine engines or nuclear-powered engines, or make a more durable metal for the leading edges and other hot spots on high-speed aircraft.

Serendipity is nice if it produces the right answers to a problem, but for every answer found this way, scientists must dig for thousands more.

Currently, for example, NRL scientists are working with the problem of atmospheric habitability for submarines. This is not a new field of research. NRL scientists have worked with this problem ever since the lab was established.

Although not nearly ready for use, one of the theories that is currently being developed in this field is the use of algae. (Algae is a species of seaweed that is probably best known as the green, scum-like growth on a pond.) Algae is also being considered for space travel. At NRL, however, the accent on this problem is under the seas, rather than over them.

ALGAE SEEMS ONE of the better ways to produce oxygen for submarines. Currently, oxygen is taken aboard submarines in bottles, or in the form of chlorate oxygen "candles." These candles, unlike an ordinary candle which takes oxygen out of the air, actually produce oxygen when they burn.

Although commonly called candles, they more closely resemble a burning cigarette. There is no wick, and when the candle burns, it leaves a solid ash that is discarded. This is an advantage over bottled oxygen because there are no empties to return.

A disadvantage of the chlorate



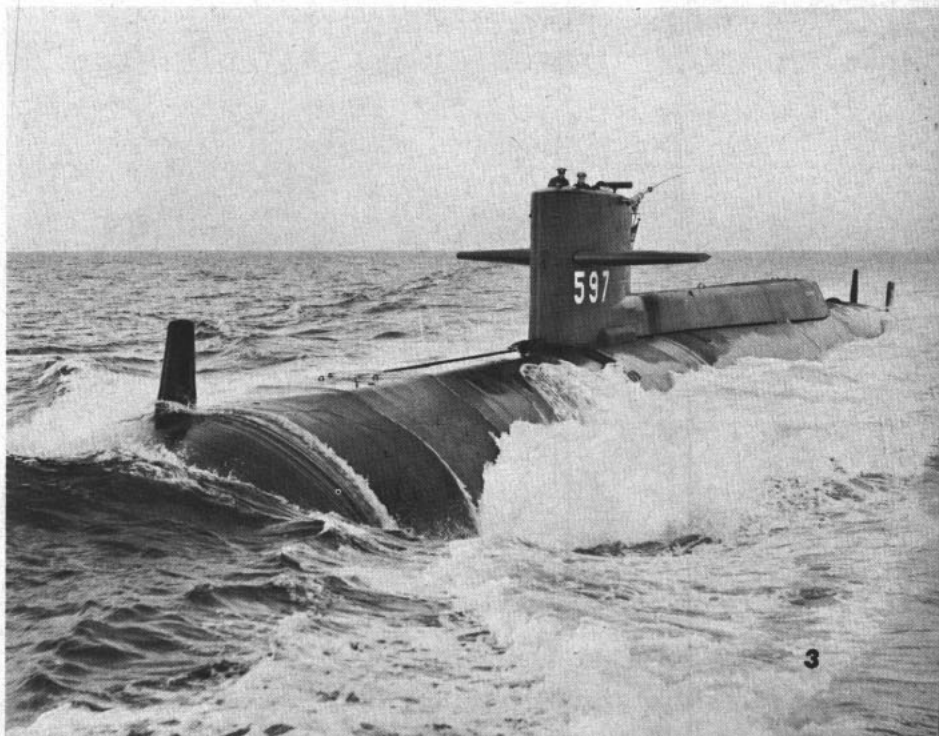
HOT STUFF — Newly developed coating protects metal at high temperatures.

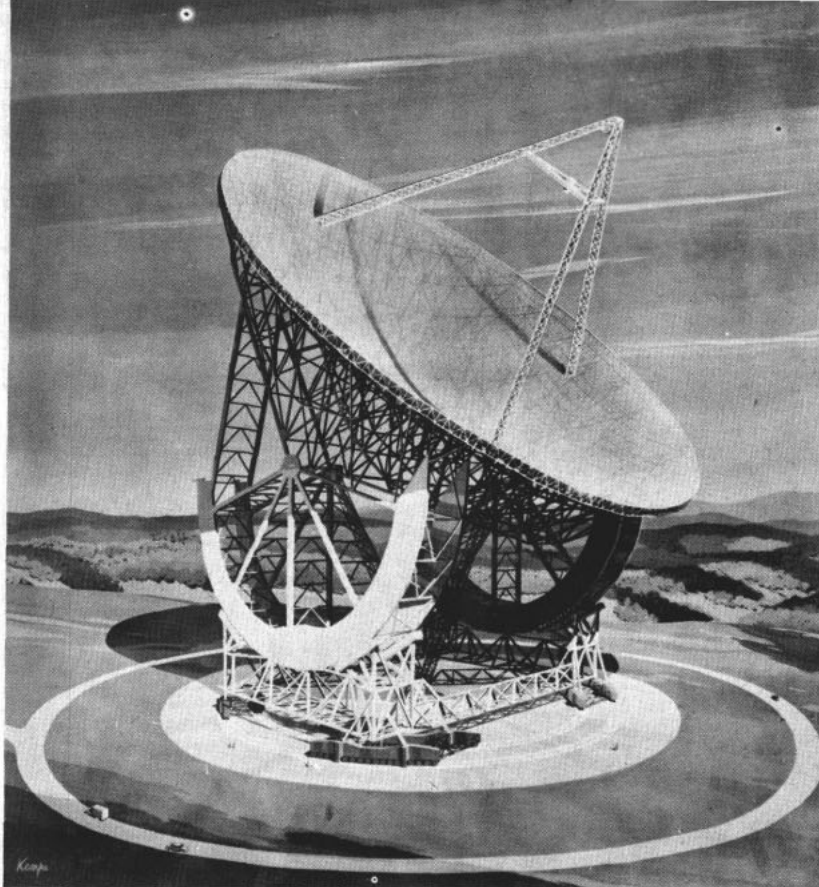
candles, however, is their cost. The oxygen they produce is considerably more expensive per cubic foot than that taken from a bottle. As with any other necessity, however, the value cannot always be judged by its cost alone.

Even with these candles and bot-

tled oxygen, submarines are limited to a maximum submerged time. Although the time has now been extended to several months, there is still that limit. If the algae theory works well enough, the submerged time of a submarine will be limited only by human endurance.

END RESULTS — Scientific research made by NRL insures ultra-modern Fleet.





REGAL RADAR—Navy's huge radio-telescope at Sugar Grove, W. Va., will be used for scientific studies of atmosphere, communications, and navigation.

Here's how algae can work: It is common knowledge that plant life produces oxygen and at the same time takes carbon dioxide out of the air. If plant life could be used in submarines to perform this same function, our problems would be lessened. It would be impractical to grow most plants in a submarine.

Algae seems to be the ideal plant life for this purpose. Besides efficiently producing oxygen, it could

also be eaten in an emergency. Although not the most delectable meal, it is high in nutrients. This is one of the biggest reasons algae is being considered for space travel.

NRL scientists already have laboratory apparatus that produces oxygen in this way. When asked how much oxygen his equipment would produce, one scientist confessed, "Maybe enough to sustain one small dwarf." He explained that this was

A GASSER—Hospital corpsman gets word on oxygen-producing algae tests.



only an experiment in reproducing algae, and not an attempt to produce a large quantity of oxygen.

RESEARCHERS ARE ALSO investigating other methods of producing oxygen aboard submarines. Only more research will show whether algae or some other method will first produce oxygen for future submarines.

NRL scientists have given impetus to numerous scientific achievements which have affected the destiny of the United States. One of the more important ones in recent years is nuclear power. This program started at NRL back in 1939.

The lab was originally given \$1500 to investigate radiation phenomena, and in 1942, NRL scientists successfully separated the isotopes of uranium by the liquid thermal diffusion method. NRL scientists did not make the atomic bomb, but it was an NRL report, complete with blueprints, that laid the groundwork for the U.S. Navy's first nuclear-powered submarine.

NRL still does a great deal of work in this field and has now built its own pool-type nuclear reactor. At the Lab, however, scientists are not primarily concerned with the energy which might propel a ship, but more interested in the effects of radiation on various materials and electronic equipment.

If this reactor was to be operated regularly for 40 hours a week at a power load of 100 kilowatts, a set of fuel elements—which contains about 11 pounds of uranium 235—would last for about 40 years.

NRL PROJECTS ARE VARIED and as new as tomorrow. One field in which the lab has been actively participating is space research. Although NRL personnel do not, as a rule, actually launch rockets, they do furnish electronic equipment and technical advice for many shots. Already NRL has four satellites in orbit and another one ready to be sent off.

The over-all space program at NRL may be said to have started in December 1945, when a Rocket-Sonde Research Branch was established "to investigate the physical phenomena in, and the properties of the upper atmosphere." The branch first of all exhausted a supply of "war-surplus" German V-2 missiles, and later launched the first all-U.S.-

built upper atmosphere research rocket, *Viking I*, from White Sands, N.M.

The *Viking* rockets and other space vehicles, such as the *Aerobee-Hi*, were fired to over 100-mile altitude and obtained photographs of the earth and measured solar and celestial radiation in the atmosphere.

Rockets have been fired from the ground, from ships, and even from balloons during certain NRL tests. The most sophisticated naval rocket ever used by NRL scientists was *Vanguard*, which placed an NRL-developed satellite into orbit. This satellite is still gathering information in outer space.

Based upon data provided by *Vanguard*, islands in the Pacific have been relocated properly on the map, and the earth has been found to be somewhat pear-shaped.

NRL scientists still participate in the space satellite program, although major responsibility has been transferred to the National Aeronautics and Space Agency.

DURING THIS LAST YEAR, for example, a 20-inch solar radiation satellite, which was designed and built by NRL, was placed in orbit by a rocket fired from Cape Canaveral. It was launched as a piggy-back rider upon a navigation satellite. After they reached the desired altitude, the satellites were separated and both went into orbit.

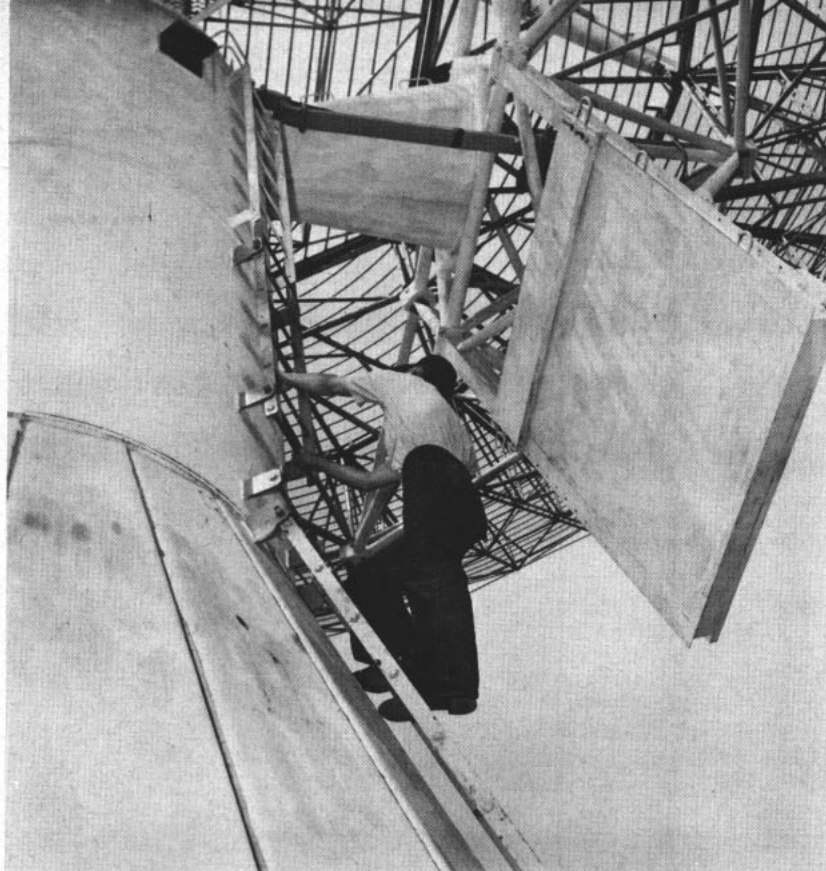
One of the most recent experiments in space research was made in November 1960 when NRL scientists launched an *Aerobee-Hi* rocket from the White Sands Missile Range in New Mexico. It measured the effects of the earth's atmosphere as high as 131 miles.

But launching satellites is only half the job. Tracking them in space is another important task.

To do this, NRL scientists and engineers developed the Navy Space Surveillance System (SPASUR) which can tell the location (present, past and future) of known and unknown satellites. Although NRL has now turned the actual operations of the SPASUR stations over to another agency, NRL is still working to improve the system.

Another electronic field in which NRL delves, but one that's a little closer to home, is the equipment and routine of a combat information center aboard ship.

Most of the work in this field is



UP AND AT 'EM—A Navy technician climbs up radar tower during maintenance check-up at one of Naval Research Laboratory's outlying installations.

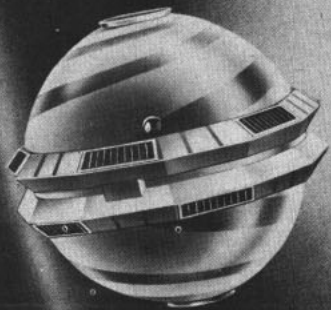
performed about 50 miles from Washington, D. C., at the Chesapeake Bay Annex. Equipment available there includes such items as devices to evaluate automatic fire control and tracking radar for ship-board use; a transonic whirling arm for testing aircraft instruments, and an assortment of machines to make special studies of sound, radio, mechanics and optics.

STUDIES ARE ALSO MADE of such simple-sounding problems as the

positions of knobs for controlling electronic gear. This may not seem important, or complex, but it is both. The controls must be in the best possible place to cut down the operator's fatigue, and also to make sure he can operate the equipment as rapidly as possible. Many times, operators of radar, for example, are kept on duty for long periods to test their alertness. During these tests, certain pre-set signals are run through the equipment to see how many of the targets can be detected.

MECHANICAL hands do 'hot' experiment at NRL's Nuclear Reactor Facility.





HIGH THERE—Drawing shows Navy's Transit-1 navigational satellite. Below: Aerobee-Hi explores the sky.

"One of the things we have learned," commented an NRL spokesman, "is that sometimes the operator detects more of the *actual targets* if some false information is fed into the machine. An operator to whom only actual targets are presented seems to miss some of them, if he has long periods of waiting without seeing one."

Another subject in this area, in which researchers are interested, is the passing of information from the CIC to the bridge. Some years ago, as an experiment, information was run into a CIC, plotted on a board in the CIC, and then relayed to the bridge where it was again plotted on a board. "You would be surprised," confessed one naval officer, "at the difference between the information that appeared in the CIC and that which showed on the bridge. It was almost like gossip. After it had passed through several persons, it was so distorted that the information was almost useless."

Because of such tests, much work has been done to lessen the chance of this happening aboard ship today. On the bridge now, for example, is a radarscope repeater which allows the Captain or OOD to receive the same information that is shown in the CIC. Because of this, the radar information supplied by CIC personnel now only supplements or clarifies the information that is obtainable on the bridge.

Also because of NRL experiments in this field, the combat information centers aboard new and rehabilitated ships have been relocated and redesigned.

THE NEWEST NRL facility is the Maryland Point Observatory, on

the Potomac River in Charles County, Md. An 84-foot radio telescope is located there.

To be added in the near future, however, is the 600-foot-diameter radio telescope which should be completed at Sugar Grove, W. Va., in 1964. This telescope is wider than the Washington Monument is high.

Not all the experiments and research are done at NRL. From time to time scientists go aboard one of two small surface ships, or a submarine, or aboard one of several large Navy planes assigned to the Laboratory. Both the ships and the planes are specially adapted for use by NRL personnel and could correctly be described as flying or floating laboratories.

Currently, for example, WV-2 *Constellations*, assigned to NRL, make periodic flights from the west coast of the United States to Hawaii as part of a project called Trade Winds III.

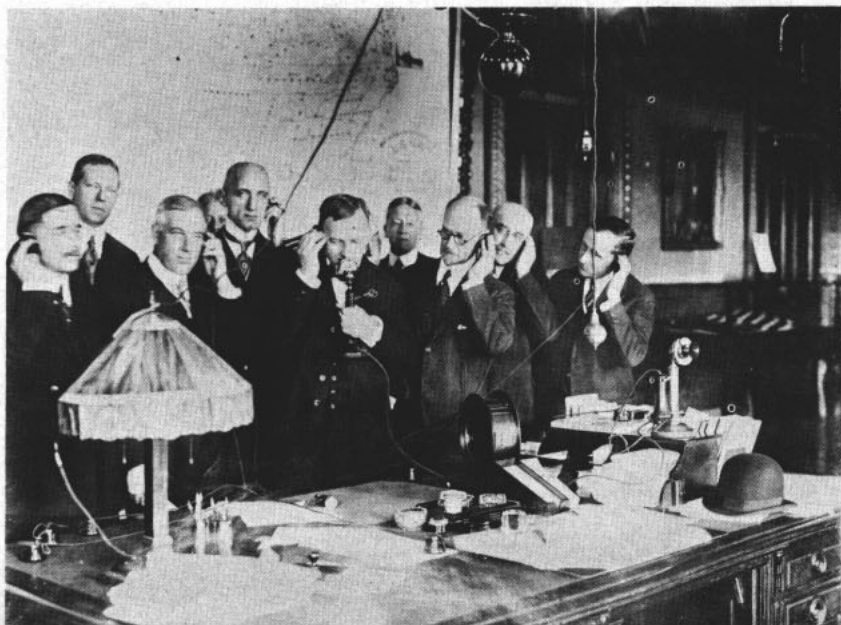
It seems that under certain conditions radio signals can be transmitted over unusually long distances through ducts in the air between thermal air layers.

Among the phenomena being studied on these flights are the effects of weather on the ducts and the existence of holes in the ducts where the radio signals could stray.

Of course, not all work outside the lab is on the ships and planes that are regularly attached to NRL. On certain occasions scientists go aboard operating ships in the Fleet for special projects.

NRRL IS STAFFED with a distinguished group of men, but not all the scientists at NRL have long backgrounds of scientific achieve-

NOTHING NEW — Naval research has championed many advances. Here, SecNav Daniels makes first call by radio-telephone with a ship cruising at sea.



ments. One group, in fact, is quite the opposite. They are young naval officers who have been selected to work at NRL because of their ability. The older scientists are extremely happy with the young officers who have come to them through the "Genius Program."

These "geniuses" are in the early and middle twenties and many of them have only a bachelor's degree. One man, for example, LTJG R. L. Blake, 27, developed an X-ray camera which was strapped to the side of a rocket and launched to an altitude of 131 miles. It photographed the sun during a period of intense flare activity. Besides LTJG Blake, there are five other young naval officers currently doing research at NRL.

These men work with some 1000 other scientists who were described by Captain Fred Tucker, Chief Staff Officer at NRL as "The most gung-ho group you have ever seen. These men always think Navy."

And the Laboratory director, Captain A. E. Krapf, does everything possible to develop the kind of atmosphere in which these scientists can work well.

Captain Bradley Bennett, Administrative Officer at NRL, who is now on his second tour there, described the Laboratory conditions as being similar to those at a college or university. "The scientists are allowed to work on projects in which they are interested. But, when rush projects come in and there can be no choosing, they are tackled with the same enthusiasm." This type of research flexibility and dedication has paid off well at NRL over the years since it was first commissioned on 1 Jul 1923.

THOMAS EDISON and Secretary of the Navy Josephus Daniels were two men who first took steps to establish the Research Lab. It seems that an interview with Thomas Edison, which was published in a New York magazine, indicated a need for a research activity such as NRL.

Secretary Daniels agreed with Mr. Edison and asked him to head a special board to study such a project. As a result of this, Congress appropriated \$1,000,000 to build the lab and an additional \$500,000 for the first year's operation.

In 1923, when the Laboratory was



CHESAPEAKE BAY Annex tests electronics to improve shipboard CIC gear.

commissioned, there were only five major buildings: A laboratory and administration building, a machine shop, a foundry, the heating and power plant, and a pattern shop made up the group.

During these early years, NRL was under the Secretary of the Navy, and its first directors had a dual capacity as Director of NRL and also as Aide to SecNav for Invention. This meant the Director's office had to be in the Navy Department, and that only part of his time could actually be devoted to running NRL.

Later, NRL was put under the Bureau of Engineering (now Bu-Ships). It now works directly for the Chief of Naval Research. "In this way," explained Captain Krapf, "we are free to work for the entire Navy and do not become involved with just one bureau's activities."

TODAY THE LABORATORY has grown from the five-building complex on 27 acres to the present 92 buildings

on 59 acres. The separate divisions at the Lab have also done their share of growing.

Originally, when NRL was known as the Naval Experimental and Research Laboratory, there were only two divisions: Radio and Sound. Today there are 13: Applications Research; Atmosphere and Astrophysics; Chemistry; Electronics; Mechanics; Metallurgy; Nucleonics; Optics; Radar; Solid-State; Sound; Radiation, and Radio.

From this list you can easily see the scope of the work done at NRL. There has been no attempt to discuss all the accomplishments or current programs at NRL. There are far too many, and some programs cannot be discussed because of security.

What is now happening at NRL may not affect you on this hitch, but unless you're about ready to hang up your hat, your future in the Navy may be considerably safer and more pleasant because of the Naval Research Laboratory.

—Erwin A. Sharp, JOC, USN



WATER BABY—Hydroskimmers are types of craft being tested by Navy.

SCIENTIFIC RESEARCH is playing an increasingly important role in our everyday life, both in the Navy and elsewhere. As an example, over half of all the money that the United States has spent on research and development in its entire history has been spent in the last 10 years. Also, it has been estimated that 90 per cent of all the scientists who have ever lived are alive today.

The Navy's Research Development, Test, and Evaluation Pro-

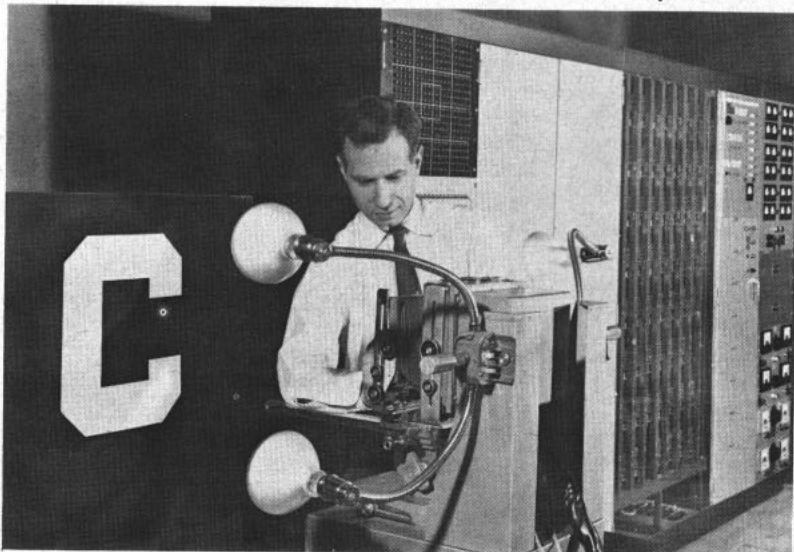
gram for fiscal year 1961 was about 1.3 billion dollars. Of this amount, over 200 million dollars was invested in scientific research.

It was almost 200 years ago that a program for research and development first started in the Navy, with the Naval Bill of 1789 which authorized experiments with ships and guns.

Here are some other highlights.

In 1830, work began on astronomy and navigation, which resulted in the establishment of the Naval

READING LESSON—Scientist from Cornell Aeronautics Lab checks Perceptron, machine that can 'read,' being developed under sponsorship of ONR.



Science:

Observatory in 1844. This was the first U.S. government scientific laboratory.

In 1888, Navy Lieutenant Bradley Fiske experimented with wireless communication. This resulted, in part, in a United States patent for radio control of torpedoes. The basic principles of this patent are still used today for the electronic control systems of all pilotless vehicles, including guided missiles.

Dr. A. Hoyt Taylor, a Navy scientist, in 1922 discovered the phenomenon of electromagnetic wave reflection. This discovery led to the development of early warning and gunnery control radars for the Fleet in World War II.

The entire history of the Navy is studded with similar research efforts. However, during the last century and most of the first half of the present century, new developments came slowly or in a hit-and-miss fashion. When something worked, the reason wasn't always known.

Before the end of World War II, Secretary of the Navy James V. Forrestal created the Office of Research and Inventions. Its mission was to sponsor research on a permanent basis which would provide the Navy with a backlog of scientific knowledge. This office was changed by an Act of Congress (in 1946) to the Office of Naval Research.

Over the years, the Navy's operational responsibilities and functions have created a need for many types of weapons and equipments. In keeping with this need, the research and development organization in the Navy has also become more diversified.

THE LATEST CHANGES in the Navy's RDT&E organization include:

- The Bureaus of Aeronautics and Ordnance were joined to form the Bureau of Naval Weapons, a merger which was accomplished in December 1959.

- The billet of Deputy Chief for Development was established in the Office of the Chief of Naval Operations.

- The position of Assistant Secre-

Key Force in a Changing Navy

tary of the Navy for Research and Development was established.

The Office of Naval Research is the Navy's central research organization. Whereas the other Navy bureaus and offices primarily carry out research and development to meet specific requirements, the ONR research program seeks to support over-all Navy technical programs and to generate from research radical new concepts for naval warfare.

Currently, the Office of Naval Research has about 1800 contracts outstanding, the majority of which are with universities and non-profit institutions of the country. More than 140 colleges and universities are engaged in basic research projects sponsored by the Office of Naval Research.

SCIENTIFIC RESEARCH in today's Navy delves into every conceivable phase of science. The Navy's broad research program, however, emphasizes areas such as electronics, nuclear physics and nucleonics, the chemistry and physics of materials, the mechanics of fluids and structures, mathematics, data processing systems, upper atmosphere studies, oceanography, and the biological and psychological sciences.

Upper atmospheric research is a continuing project. Probes with sounding rockets and manned and unmanned balloon flights are contributing a great deal of information concerning the nature of the earth's environment. Data resulting from such programs will help to solve existing communication and navigational problems, as well as add to the Navy's basic store of knowledge.

SCIENCE ACTS FAST. For example, Navy ships of the not too distant future may be very much different from ships we know today. It was only five years ago, you may remember, that the Navy introduced into operation in a single year the first nuclear-powered submarine, *uss Nautilus*, SS(N) 571; the first of the modern jet carriers, *uss Forrestal* (CVA 59), and the

first guided missile ship, *uss Boston* (CAG 1).

Stemming from *Nautilus*, submarines of the future will be true submersibles. Submarines will also be missile-equipped for offensive power, much as the Fleet Ballistic Missile submarines are today. They will have underwater missiles for attack on other submarines or ships.

Surface ships of our future Navy will also undergo many changes. For example, the Navy is already moving strongly toward the development of hydrofoil boats of warship size. Contracts have been let for a 100-ton patrol craft designed as a full anti-submarine warfare ship with speeds up to 50 knots on foils. Hydrofoil ships the size of a small destroyer, with displacement up to 500 tons, are under design consideration and may be available for tests in the next few years. Work is also going forward on various types of hydroskimmers, or "ground effect machines."

WITH ALL THESE DEVELOPMENTS, there will be a new look in the surface Navy of tomorrow.

With nuclear propulsion, the smokestack will disappear.

Gun turrets are already rapidly being replaced by guided missile

mounts, and even the vast array of radar antennas of the modern Navy ship may soon be replaced by a single dome which will project needle-like radar beams of unprecedented power.

Certain types of Navy aircraft may also take on a new appearance. Vertical assault transport and short takeoff aircraft seem well adapted to such missions as support of ground forces and operations ashore. Present plans call for the development of a vertical-take-off assault transport aircraft that will be tested jointly by the Navy, Army and Air Force.

Space research is just one more field in which the Navy makes studies. The navigation satellite *Transit*, for example, which was launched last April, is still circling the earth and providing research information.

These advances have resulted in a large part from a carefully planned and executed scientific research program over the past years. It is the Navy's policy to continue to conduct a broad and comprehensive scientific research program so that the weapons and equipment of the future will not suffer from obsolescence on introduction to the Fleet. Science is our ally.

HOT AND COLD—Geologist measures radioactivity in frozen wastelands of Antarctica while on cross-country trip during Operation Deep Freeze.





Deep Sea Scouts

IN THE EARLY DAYS of our nation, Daniel Boone and his fellow scouts went busily about their job of helping to open up a strange new country. One of the requisites of scouts was a curiosity about the unknown, and another was a nose for danger, to warn of wild animals, natural hazards and unfriendly Indians.

Taking their cue from the Indians, Dan and his friends made it a point to learn their way around the forest — the paths to use for escape or attack; to know the mountains, and to know the forest sounds that told them if danger were near in this land of the unknown.

In a way, things haven't changed much since Daniel Boone's time, but the horizons have widened greatly, reaching into strange new areas. One of these areas is the world under water, and in the forefront of today's trail blazers for the Submarine Navy is a rather unusual category of scouts — the oceanographers.

OUR OCEANIC TRAIL-BLAZING also reaches into the past, too — pioneered in the middle of the 19th century by LT (later CDR) Matthew Fontaine Maury. For example, his knowledge of oceanography enabled him, in 1853, to predict where a disabled ship would be found. The transport *San Francisco*, the victim of a hurricane, had drifted about 300 miles in the ocean from Sandy Hook. Maury used his knowledge of surface currents to pinpoint her position. Nearly a century later, the same type of information accumulated by Maury and those who followed him was used during World War II in air-sea rescues.

The Navy has various ways of learning about the sea. The ideal situation would be for our underwater explorers—the oceanographers—to get out and walk around under the water, collect specimens, chart currents and underwater temperatures, measure salinity, and do all

the myriad things necessary to understand their surroundings. In only a few instances is this possible.

One method of exploring the oceans that most captivates the imagination of the layman is the bathyscaph (see page 14).

In January 1960, the Navy made news when LT Don Walsh and Dr. Jacques Piccard descended 37,800 feet in the bathyscaph *Trieste* to the bottom of the Marianas Trench.

Trieste is part of the Navy's oceanographic fleet which also includes more conventional ships and subs. These craft are used by the Navy's eight research laboratories, each of which has an area of specific interest in the ocean. In addition, the Navy has approximately 300 full-time scientists under contract. This accounts for over 50 per cent of all American oceanographic research.

THE NAVY is considering future marine research which will enable

DOWN BELOW—Underwater camera catches picture of sea life and bottom at a depth of 5850 feet in the Atlantic.





NEW FRONTIER—Navy scientists are blazing new trails reaching into strange new areas under the surface of the sea.

it to play an even greater part in learning about the medium in which it operates. It will include an improved bathyscaph, open-ocean manned research platforms stable enough for studies, a major program of anchored buoys for space and time coverage of ocean characteristics, a submarine capable of breaking into and out of the ice, a major program aimed at developing high seas engineering techniques in such operations as drilling and bottom sampling, plans for marine science laboratories and a design and development program for building deep and mid-depth manned vehicles.

Until the 1930s the Navy limited its oceanic research to collecting information affecting climate; charting the topography of shallow ocean bottoms and compiling descriptions of the tides and winds.

Today, the Navy spends much of its time on underwater research. One of its top projects is learning more about what oceanographers call internal waves.

An internal wave is very much

like the kind you see while leaning over the side, except that it is completely submerged.

Why does the Navy want information about underwater waves? You guessed it—they limit the bearing accuracy of sonar.

Scientists usually measure this phenomenon by placing buoys in a triangular configuration at various points in the ocean. The buoys dangle instruments at various depths for testing water density and temperature. The movement of underwater waves is measured by tracking isotherms (lines connecting points of equal temperature). When an isotherm passes one triangulation point, the time it takes to reach the next point of the triangle is clocked. All the peregrinations of the isotherm are recorded on a graph giving scientists a basis for figuring the size of the wave and the speed at which it is traveling.

The methods now in use for measuring internal waves leave much to be desired and there is still much to be learned. For instance, we don't

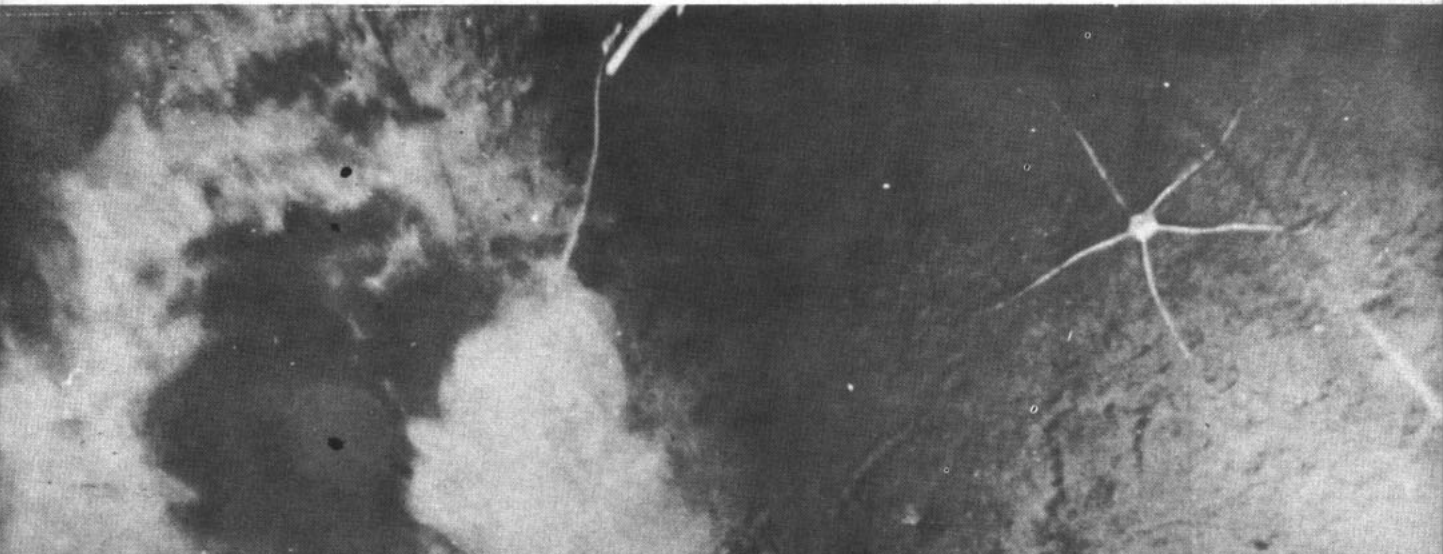
know how internal waves are generated, or if they break near the shore. We would like to know if they are effective in mixing nearshore water as well as their relationship, if any, to tidal period, and the friction between tidal movements and the rotation of the earth.

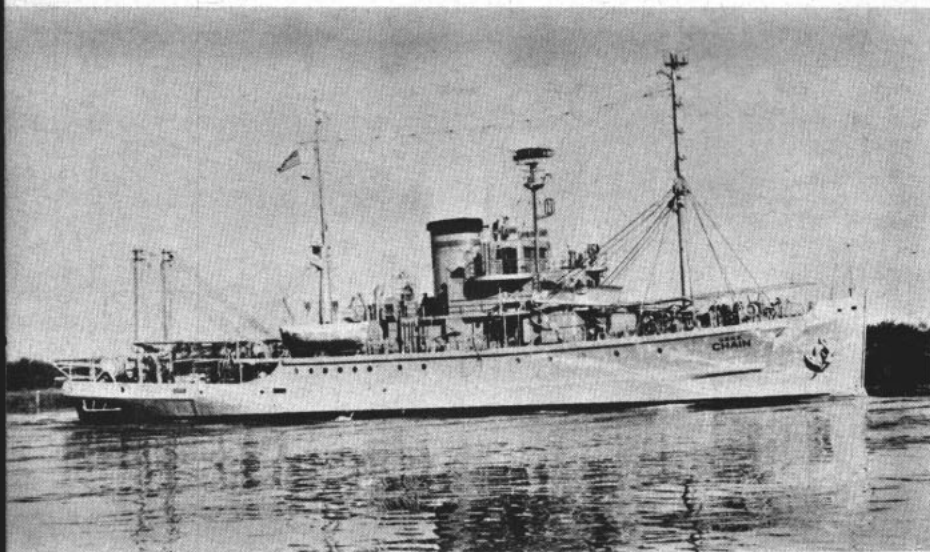
ALL THESE QUESTIONS must be answered by oceanographers. The answers are hard to come by, but the safety of submarines and their ability to contact their enemies could depend on the answer.

Before the problem of the internal wave can be solved, questions concerning water density and temperature changes must be answered. For instance, water temperature at a given point has been observed to drop as much as ten degrees in as many minutes at the same level, and with no apparent reason. Again—why?

During World War II, research on the ocean's density and sound bending, owing to temperature changes and differences in the

WATER WILDERNESS—The Navy is now exploring and discovering new facts about ways of the ocean and its depths.





PATHFINDER—USNS Chain is one of the ships in Navy's oceanographic fleet.

amount of salt in the water, permitted submarines to hide and move about more safely. They were, therefore, made more effective, and a number were saved from destruction by this knowledge.

The same information, plus knowledge on how sound travels in sea water, was used in sonar design and in the tactical operations of anti-submarine ships or task groups. For example, this enabled the Navy to determine how to space ships in the sonar screen around a convoy.

Learning the solution to these problems makes underwater submarine detection much more efficient. Many detection devices, however, depend almost completely upon the fact that the enemy submarine makes sufficient noise to be detected.

When the enemy is sufficiently cooperative to make noise, the sound can be picked up by antisubmarine submarines or from hydrophones. A hydrophone can be a device, lowered into the water from a sonobuoy, which raises an antenna and broadcasts to its mother aircraft whatever the hydrophone hears.

Again, the problems of water density, salinity and—most of all—temperature, must be solved. If these factors vary, and they usually do, sound velocity varies. Changes in sound velocity bend sound rays and they may miss the target completely, particularly if the enemy submarine lies just below a sharp temperature discontinuity or layer. A layer of this kind acts like a mirror and reflects the sound waves away from the target it searches for.

We can measure these temperature variations and compensate for them at a given place or time, but a mile away or an hour later they may be different.

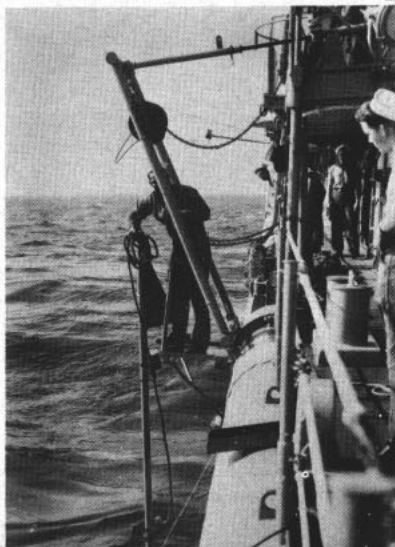
Ship movements can be charted to avoid submarines taking advantage of these conditions, but what about the protection of our cities from hidden attackers? The only answer lies in solving the oceanographic problem.

ALTHOUGH UNDERSEA RESEARCH has taken up a large portion of the oceanographic research time, oceanographers are by no means concerned with these problems alone.

Interchange of energy between water and air is becoming a matter of great concern to scientists.

Dr. Edward Teller, father of the

PICTURE PLEASE—Crew members of USS Rehoboth (AGS 50) get set to send camera to photograph bottom.



H-Bomb, has suggested that a potential enemy could conceivably halt rainfall in the United States for as long as two years, thus compelling the United States to surrender without a shot being fired. This sounds a little far out, but control of the circulation and surface action of the oceans could make it possible.

Dr. Henry G. Houghton, Director of Earth Sciences at the Massachusetts Institute of Technology, has said that weather control can no longer be considered visionary, and that the United States may well find herself in a poor bargaining position when the time comes to make international agreements concerning weather control, unless she remains abreast of the research of other countries.

Both the United States and England have announced initial laboratory successes in extracting hydrogen from the oceans for fusion energy.

If hydrogen fusion could be achieved, it could be used as a means of supplying cheap electrical power to the entire world. All that would be needed is water—water from ponds, rivers, lakes—anywhere.

The ocean floors may be made to give up deposits of minerals and oil that will dwarf any supplies now known to man.

The sea may become the principal source of food for earth's expanding population. Acre for acre, the sea already produces about as much plant material as do the land surfaces of the earth. Since the sea accounts for most of the earth's surface, the sea produces more food now than the land masses do.

The application of the sea to benefit mankind and the uses to which the sea can be put to aid in our defense, are almost limitless, yet it is only beginning to give up a few of its secrets.

The bottom of the ocean is less familiar to us than the surface of the moon. It has mountain ranges comparable to the Rockies, fracture zones 2000 miles long, trenches 35,000 feet deep, and immense flat plains in its 300,000,000 cubic miles of water.

The science of outer space has caught the imagination of man, but his safety—and eventually his ability to obtain food and other life necessities—may well lie in the murky depths of the oceans in which his enemy can hide until he chooses to attack.

—Robert Neil.

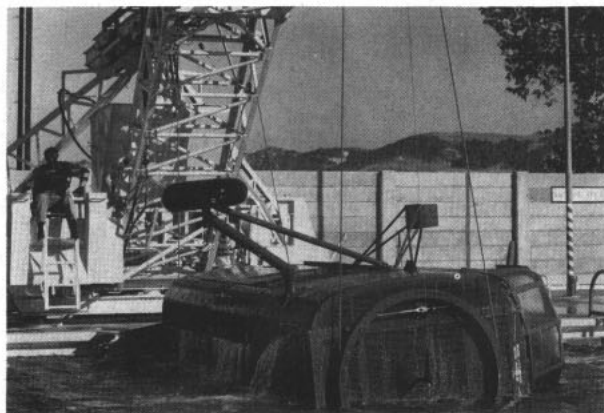


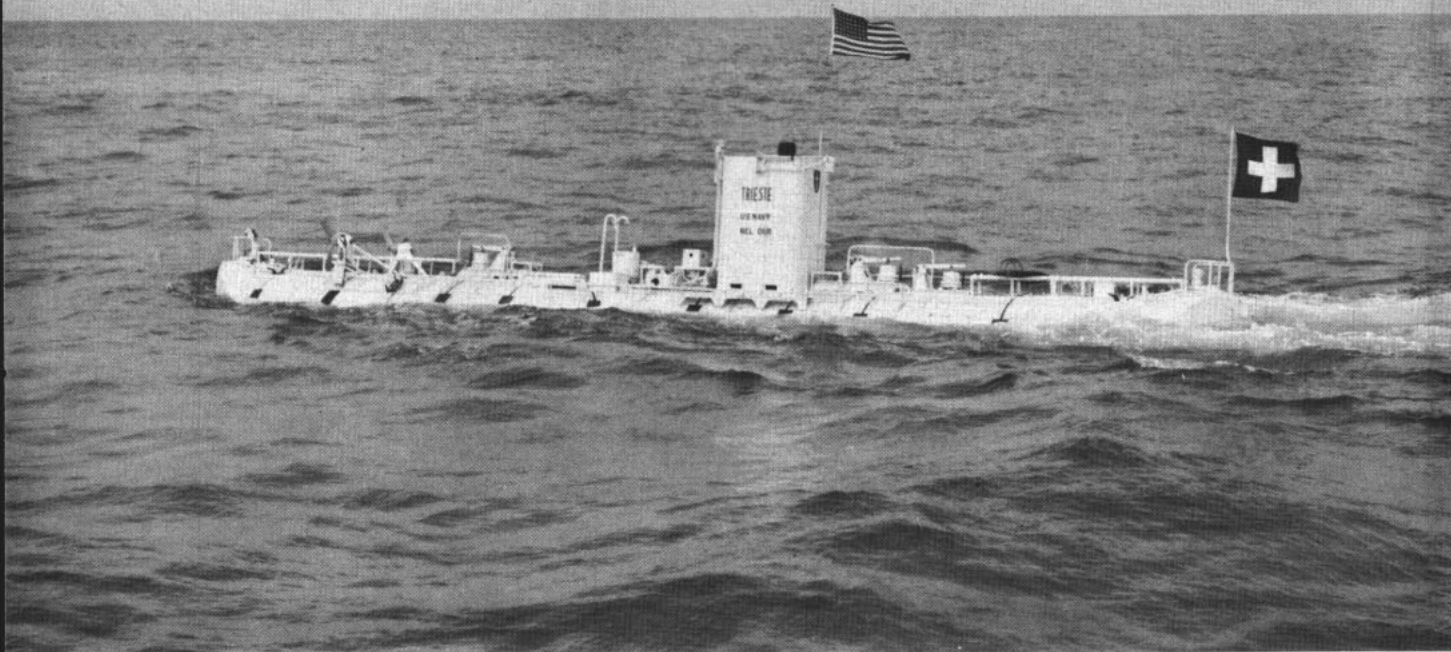
Deep Sea Copter

HAVE YOU EVER HEARD of an underwater helicopter? You say it would never work? Well, out at Camp Pendleton, Calif., the Marines have one that does. It works to train helicopter troops and crews in evacuating a copter downed at sea.

The new survival training device, nicknamed "Dumbo the Dunker," was developed in cooperation with the Naval Training Device Center and is now being tested and evaluated by the Corps. It works like this: Men board the mock fuselage, sit and fasten their seat belts. A crane lifts the unit over a pool and drops it into the water. The trainees then unfasten themselves, swim out the door and head for the surface. As the men learn their way out of this underwater whirlybird, frogmen keep watch to make sure all goes well on the way out and up.

Top: Troops board "Dumbo the Dunker." *Top Right:* Marine leaves cabin and heads for surface. *Right:* Trainer hits water like copter ditching at sea. *Lower Right:* Helicopter troops head for the surface. *Lower Left:* Frogman (left) keeps eye on surfacing Marine.





DEEP DIVER—Bathyscaph Trieste undergoes tests prior to Navy diving expedition to the bottom of the Pacific Ocean.

Inner Space Ship

IN THE NAVY, most things that sink to the bottom of the sea are looked upon with raised eyebrows. Not so with the bathyscaph *Trieste*. What is a bathyscaph? It can best be described as an "inner space ship" or an "underwater balloon."

The principle of the bathyscaph's operation is exactly the same as that used in the design of the free balloon that has carried man into the skies for well over a hundred years. To be sure, many concessions had to be made in order that the craft could operate on and below the surface of the denser medium, but it is still a very simple design.

Two primary structures comprise the basic elements of *Trieste*. The first is the float, or balloon, which is the upper, sausage-shaped assembly. The second is the sphere, or gondola, which is suspended below the float.

The float has an elongated shape instead of the usual spherical configuration because it has to be towed through the water to reach the diving sites. If it did not have to be towed, it could have been ball-shaped.

The sphere hanging below the float looks like the gondola on a stratospheric balloon, with one exception—this sphere has to resist external pressure of the sea while the gondola of a stratospheric balloon

holds internal pressure in the rarefied atmosphere high above the earth.

The pressure exerted on the gondola when it descended to the bottom of the Challenger Deep was eight tons per square inch.

IN MAKING AN UNDERWATER BALLOON work, conventional gaseous substances such as hydrogen or helium cannot be used for buoyancy because they are too compressible. Something had to be found that would be less compressible yet easy to handle and, of course, lighter than water.

The ideal solution proved to be aviation gasoline which is three-tenths lighter than water. With the float filled to capacity with some 33,350 gallons of aviation gasoline, it has almost 46 tons of lift capacity. If you subtract the weight of the craft from the lifting capacity, the remainder is the useful pay load. For this reason, the structural weight of the craft has to be kept as low as possible so that it will be able to carry a maximum instrumentation load.

The sphere is the only pressure-resistant part of the bathyscaph. It needs thick steel walls to protect the fragile human beings inside from the crushing pressure of the depths.

On the other hand, the float is constructed of very light steel and is fitted with a compensating arrangement which equalizes the pressure on the float. This is necessary because the gasoline will be compressed by the sea pressure as the craft descends.

If the thin-walled float were rigid, it would be deformed by the pressure of the sea and if it were made pressure resistant, it would be too heavy and would not provide any buoyance to support the sphere.

THE SOLUTION LAY in installing a breathing valve which would open in the direction of the lowest pressure. Thus, as the craft descends, the valve opens inward, allowing sea water to enter the float. On the trip back to the surface, the valve opens outward to allow the water to flow out of the float. Since the water is, of course, heavier than the gasoline, the gasoline always floats on top.

Compression of the gasoline reduces the lift of the craft, so a method of dropping weight in order to maintain equilibrium had to be found. This was done by using steel shot ballast.

The ballast is contained in two large tubs which are fixed to the bottom of the float. Each tub holds eight tons of droppable ballast and,

in an emergency, even the heavy tubs can be dropped.

The flow of the shot is controlled by a magnetic valve which, when energized, holds the shot in place. When the current is turned off, the shot is no longer magnetized and it is free to flow. This method insures very fine control of the craft's speed during the dive.

THE SPHERE is the real heart of *Trieste*. All the batteries, instruments and controls for the operation of the vehicle are located here. The interior diameter of the ball is a little over six feet. However, with all the normal equipment installed, the crew is left with approximately 17 cubic feet of working space. This is a little more space than you might find in a home refrigerator. Sometimes it is just as cold.

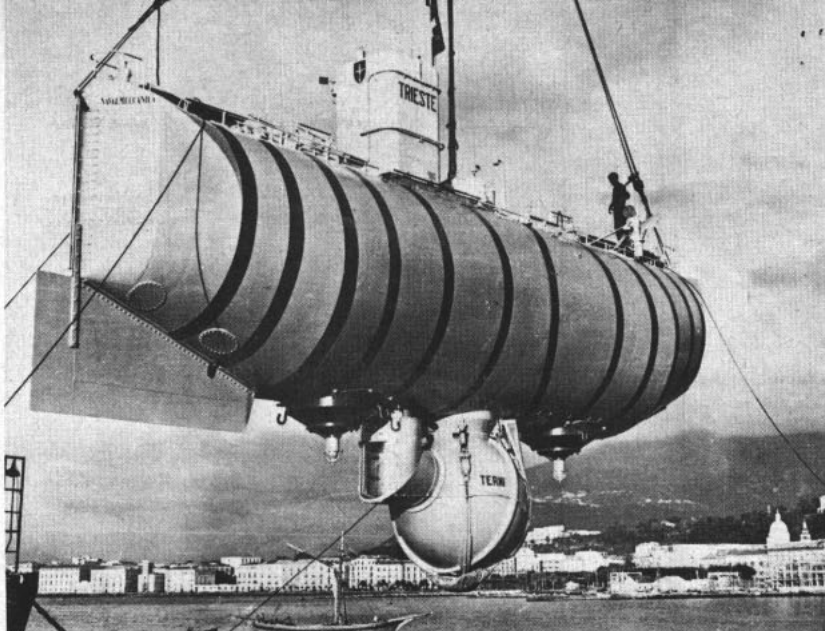
Two plastic observation ports are fitted in the wall of the sphere. One is the primary observation port, while the other, located in the entrance hatch, is used by the operator to observe the ballast flow from the after-shot tub. These conically shaped windows are nearly seven inches thick. The inside viewing area is only about three and one-half inches in diameter while the outside surface is almost 16 inches wide.

Since the underwater world is not blessed by the light of day below 1500 feet, *Trieste* has to carry her own lights into the depths. These are powerful mercury vapor lights which allow *Trieste's* crew to examine the ocean's floor in minute detail with the human eye and the camera. The three lights give the craft's crew a viewing area of about 30 by 20 feet at any depth.

Two small maneuvering motors are fitted to the top of the float to permit the bathyscaph to move in a limited fashion across the sea floor. The only reason the craft is not more mobile is that there isn't enough battery capacity to run higher-powered propulsion motors. It is a case of running the lights, cameras and instruments or running the motors.

There are plans to improve the capacity of the battery system and the efficiency of the motors.

NOW LET'S GET DOWN to the operation of *Trieste*. In normal trim, the craft has about 12 tons of buoyancy on the surface. This is provided by the flotation tanks which are located on each end of the float.



BALL ROOM—Sphere on bottom of *Trieste* holds observers & craft's controls.

While the craft is being towed on the surface, these tanks are filled with air. To make it dive, the vents on the top of the two tanks are opened, allowing sea water to flood into them, making the craft heavy enough to submerge.

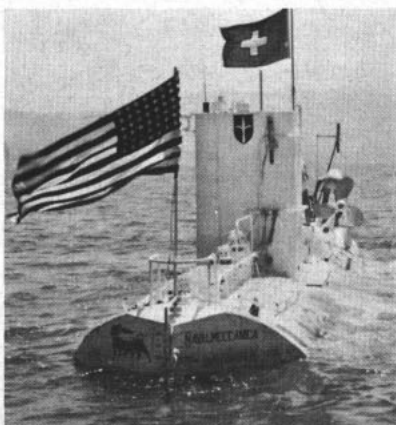
By "heavy," we mean on the order of a few pounds. The bathyscaph is very carefully trimmed before leaving port. If it went down like a rock, it would take too long to get it under control and the crew might not be able to get good instrument readings because of the rapid rate of descent.

Access to the sphere is through the conning tower, topside, and down through the entrance tube which goes through the float to the sphere. Once the crew is inside the sphere and the heavy door is closed, the entrance tube is flooded.

The added weight of this water also helps send the craft down. The tube is flooded because it would cost too much in structural weight to make it pressure proof. In this way, it can be of the same light construction as the float as it, too, is fully equalized with sea pressure.

When the bathyscaph surfaces,

TRIESTE is seen on earlier mission.



the tube is emptied by means of compressed air which is stored in bottles in the sphere.

ONCE THE END TANKS are flooded, the sphere hatch closed, and the entrance tube flooded, *Trieste* makes a graceful bow or two as the waves flow over her and then slips from sight. In clear water, you can see her white outline down to 100 or more feet.

Inside the sphere, the crew is very busy and will stay that way for the duration of the dive. Continuous attention must be paid to the operating controls and the myriad dials and gauges connected with the scientific instrumentation.

Once on the bottom, the crew's attention turns to the observation port. Visual observations are recorded on the midget tape recorder while photographs are made with both still and movie cameras.

An external remote camera suspended below the float supplements the internal camera in giving a complete photo coverage of the bottom.

The trip back to the surface is not as productive as the descent, owing to the turbulence caused by the craft's passage through water.

Once back on the surface, the crew blows the entrance tube dry with compressed air and let themselves out of the sphere. At the same time, a work boat with an air compressor aboard comes alongside with an air hose to blow the water out of the end tanks.

When this step is finished and *Trieste* is sitting high in the water, it is ready for the tugboat to hook up the towing line for the trip home.



IN THE HOLE—Seabees place steel archways over snow tunnel that will house buildings at future Byrd Station.

A City Under Snow

SEABEES OF OPERATION Deep Freeze have been snowed under in their construction work and soon a large part of Byrd Station will be in the same situation.

The Navy has been building a new under-the-snow base to replace the present Byrd Station that is being crushed by five years' accumulation of ice and snow. The new scientific base will bring a new

concept to inland station activities in Antarctica, using the knowledge gained since Deep Freeze began, and the old station was built, in 1956. New Byrd will have one large tunnel, with seven others branching from it. All will be under the snow. Inside these tunnels will be the buildings to house the Navy support personnel and scientists. Buildings will include one for recreation and

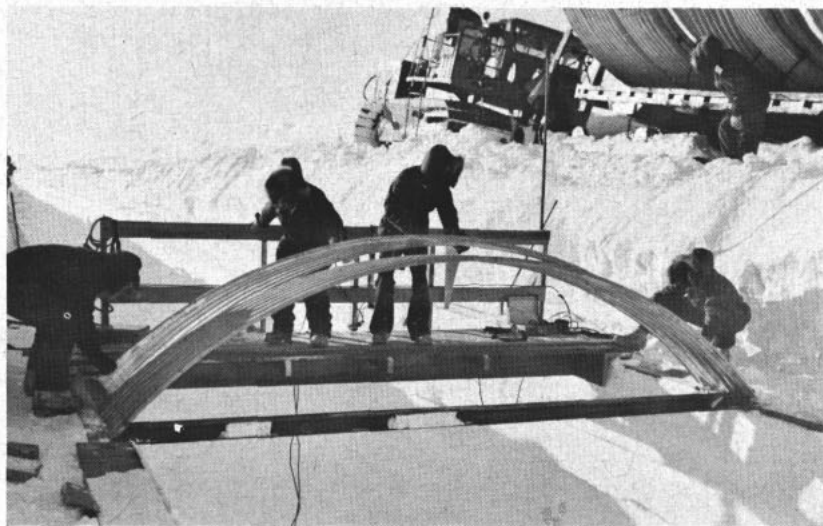
administration, a hospital, mess hall and galley, garage and work shops.

For scientific work there will be structures for the study of meteorology, geomagnetism, radio noise and a glaciology lab. Above the surface will be an aurora dome building, a shelter for the inflation and releasing of weather balloons, and a radar dome for tracking them.

The main pieces of equipment in

SNOWED UNDER—New Byrd Station is being built under the snow. Rt.: Bladed drum of Snow-Miller digs tunnel.





SNOW FOOLING—New station under snow benefits by past experiences.

the tunneling operation are two trench-cutting machines called Snow-Millers. These highly specialized units cut through the snow and ice to carve open trenches. From a distance the Miller in operation looks like an erupting geyser with a plume of snow marking the work in progress. Two revolving cutting drums mounted on the front of the machines open a swath four feet deep and nine feet wide. The snow is carried up and outward through two upright chutes.

Old Byrd Station, only six miles

away, is a dramatic contrast to the high, blue-white tunnels of the new base. The eleven buildings originally built on the surface for the International Geophysical Year (IGY) are now buried. All have been shored to reinforce the roofs that crack and groan as they slowly give way to the pressure overhead. Their steel girders and beams are twisted and bent.

In spite of the creaking and groaning of tons of snow pressing down overhead and the cracking sound of beams that are slowly giving way,



BIG BITE—Snow-Miller sends stream of snow and ice skyward as it tunnels its way in at Antarctica.

Navymen work on in the old base. Experience has taught them that cave-ins do not happen suddenly, but occur slowly and can usually be braced in time to prevent collapse of a building.

Supplies, equipment except for some heavy gear, and men have been airlifted the 850 miles from McMurdo eliminating the hazardous tractor train trips necessary to build old Byrd.

INSIDE JOB—Navymen scrape the loose snow from walls of main tunnel while building new base in Antarctica.



Cold Country Doc

“WHOEVER SAID there are no bacteria in Antarctica is just plain wrong.”

That's the word from a Navy doctor who recently returned from the Antarctic. He was one of 13 doctors, including two dentists, serving in the scientific support operation.

LT A. Michael Pardue is the flight surgeon assigned to Air Development Squadron VX-6, and he's firmly convinced that wherever there are people or animals, there are bound to be bacteria. The Antarctic, which some sources have indicated is too cold to sustain bacteria, is no exception.

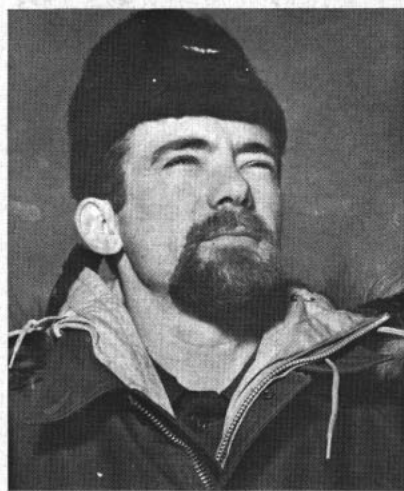
“For example,” cites the doctor, “men bring colds to the Antarctic from warmer climates. The cold germs spread from man to man, and before you know it the infected 80 per cent of newcomers have infected 20 per cent of the previous wintering party.”

Dr. Pardue's squadron is a unit of Task Force 43, which has the mission of supporting the U.S. scientific effort in the Antarctic.

When the group returned to the U.S., the doctor was able to provide a first-hand account of cold weather medicine and life at the bottom of the world.

LT Pardue, incidentally, became a cold weather doctor in an abrupt way. A year ago, while he was stationed in Rhode Island, he wrote a letter to Washington for information about Antarctic operations.

IN SPITE of Antarctic's frigid climate it still has problems with cold germs.



LT A. Michael Pardue, MC, USN

“Two weeks later, I received orders to VX-6.”

Before he headed south, he saw to it that the airdales were physically and mentally qualified for the isolated duty that faced them.

Each man had to pass a physical examination more strenuous than those given to submariners. However, color-blindness did not disqualify a man for Antarctic duty, since most color-blindness involves green and red. This is unimportant where everything is snow white, except for occasional dark patches of black or the deep brown sides of exposed mountains.

The doctor arrived on the Antarctic ice landing strip at McMurdo Sound in a VX-6 *Super Constellation* (R7V). There he established a canvas and wood medical clinic, small and barely equipped to meet minimum standards. Serious cases were to be referred to the main camp dispensary at McMurdo.

He remained on the landing strip for the entire summer tour with only a two-week break, and an occasional trip to McMurdo.

The runways are carved out of the bay extension of the Spain-sized Ross Ice Shelf, the largest mass of floating ice in the world.

From there, VX-6 planes flew to outlying stations in the middle of Marie Byrd Land and at the geographic South Pole.

During the peak of the summer support operation the population at McMurdo exploded to nearly 700 including scientists and military.

Nearly half the military were quartered in huts on the ice strip—thus the need for Dr. Pardue and his clinic.

The most common medical ailment the cold weather doctor treated was dry cough. Most of the men who complained of the cough came down with it during their first few days on the ice.

The cough was caused by the extreme dryness of the Antarctic climate and was aggravated by overheated huts and a general increase in smoking.

Dr. Pardue prescribed a soothing cough mixture, and the ailment usually disappeared as soon as the men became accustomed to the climate. This took about two weeks.

The doctor's first emergency situation came in late October when a WV-2 aircraft crashed at McMurdo while attempting to land.

The twelve men aboard the plane were given immediate first aid treatment. Four were listed in critical condition. They were flown by VX-6 helicopter to McMurdo's dispensary where more complete medical facilities were available.

In November the doctor was confronted with another emergency when a ski-equipped R4D *Skytrain* crashed in the Horlick Mountains, about 300 miles north of the Pole.

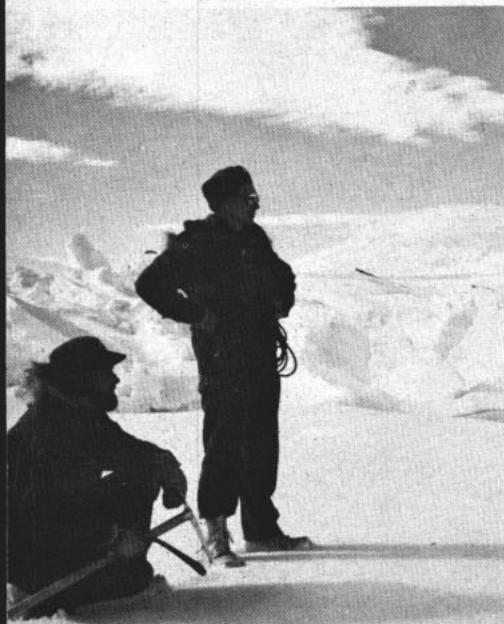
Doctor Pardue boarded an aircraft which flew him to Byrd Station, and he continued from there to the Horlicks.

The stranded crewmen of the crashed aircraft had radioed they were uninjured, but Dr. Pardue believed that the men might have minimized their injuries.

He examined the men and found them shaken, but fit, and returned to his vigil on the runways.

Just before Christmas the doctor flew to Pole Station to make a first-hand check on the effect cold weather and high altitude had on the men working there. Pole Station is 9200 feet above sea level and, at the time, the temperature was 20 degrees below zero.

He also evaluated the cold weather clothes worn by civilian scientists at the Pole, for an arctic research organization. He reported the clothing was lighter than, and as warm as, the gear worn by Navy-



men, but of a less durable quality.

After another term at his runway sick bay, Dr. Pardue went to Christchurch to take care of a diagnostic problem. This was accomplished within three days, but the limited availability of air transportation back to the ice, coupled with adverse weather between Christchurch and McMurdo, delayed his return.

As a result, the doctor had a two-week holiday.

Returning to McMurdo, "the days passed routinely."

All in all, he treated few injuries at the airstrip in the Antarctic, and ascribed it to the fact that the men selected for the operation had intensive pre-deployment training.

He was surprised at the limited cases of frostbite and snow blindness, but expressed concern over carbon monoxide poisoning, an ever-present danger in Antarctic expeditions.

Commenting on Antarctic food, the doctor said he would like to see more stress placed on proteins and less on carbohydrates. The men are well fed—their daily ration is one and one-half times as much as the average seagoing sailor's. Antarctic workers need the extra food to provide the energy which is needed in cold weather.

On the subject of bathing, once a week is a rule of thumb in the Antarctic. The unwritten order is routinely observed in an effort to conserve water which must be melted from snow. Also, a solid medical reason is that the climate dries the skin. Excessive use of soap dries the skin even more.

The doctor had kind words for the VX-6 para-rescue team—a group of men trained to parachute to the rescue of Navymen and scientists who might be downed in remote areas of the continent.

"When an emergency arises, the para-rescuers are ready to go. They have been instructed in advanced first aid and survival work."

LT Pardue also had a doctor's bag full of praise for Chief Hospital Corpsman Herman D. Harris. The work accomplished by Chief Harris in the Antarctic makes a story of its own.

Harris spent his tour at the Geographic South Pole Station where he was assigned to assist the camp's doctor.

When he arrived at the Pole Station he found the sick bay was small

(8 by 20 feet) and cramped with everything from aspirin bottles to a surgical table.

The Chief decided he needed more working room, so, after three weeks of digging medical supplies from the snow and conducting an inventory, he started to work on bigger sick bay facilities.

He selected a weatherized building which was not being used at the time, marked off an area about 28 x 20 feet, and started construction.

The Chief raided the camp "bone yard" and found plenty of lumber in the form of old crates, two-by-fours, and slightly used pieces of plywood.

He set up partitions in the empty building, dividing his area into five rooms, which included an 8-by-8 foot x-ray room, a combination laboratory and pharmacy of the same size, a storeroom for medical supplies and equipment, an 8-by-12 operating room, and a 20-by-12 doctor's office and sick call room.

The press of routine station activity and increased air operations precluded any outside assistance. Only when faced with the impossible task of installing a new overhead did Chief Harris call for help.

Three Seabees, fascinated with the success of the do-it-yourself corpsman, each devoted three hours of off-duty time to assist him.

Another problem was rounding up tile cement, but this was solved with the help of a Marine pilot and one of his crewmen.

To begin with, the Chief had asked suppliers at McMurdo to furnish him with the necessary cement, but two weeks passed and it didn't show up.



IN SHAPE — Life in Antarctica is rough but Navymen are conditioned.

To expedite delivery, Chief Harris then asked the Marine if he would look into the matter during his next visit to McMurdo. He returned with five gallons of asphalt cement, just what the Chief needed.

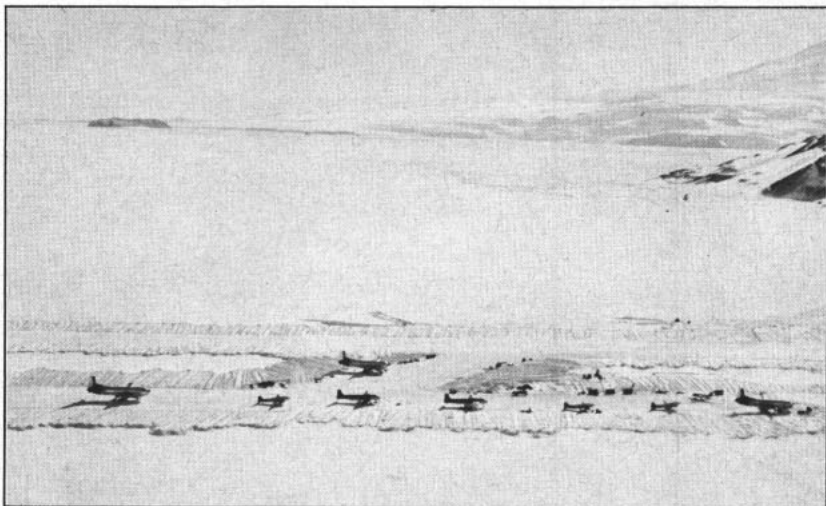
It wasn't until the Chief returned to McMurdo himself that he found how much interest his building project had gained outside of Pole Station.

On the cement problem, for example, he learned the Marine pilot had told his plane captain to get the needed cement and not to return to the aircraft without it.

To make it easier for the airman, it was indicated that no one would ask him where the cement came from. He doesn't say where he got it.

—Scot MacDonald, JOC, USN

ON ICE—NAF at McMurdo, where LT Pardue had his clinic, is on Ross Ice shelf.



SERVICESCOPE

Brief news items about other branches of the armed services.

A PRINTING MACHINE designed to reproduce colored maps by means of an "electrostatic process" is under development by the Army at Fort Belvoir, Va.

The heart of the process is a photo-conductive coating with the unique property of being an insulator in the dark and a conductor in the light. This combination results in the basic fundamentals required for electrostatic printing.

The present machine reproduces maps directly from miniature separation transparencies. This makes map reproduction possible in much less time than by the present lithographic process.

Studies and tests of the present machine are expected to lead to the development of a five-color electrostatic printing machine capable of reproducing 2000 multi-color maps per hour. The studies and tests are the first phase of a new system for map reproduction, storage and issue being developed by the Army Engineer Research and Development Laboratories to reduce the time for quantity map reproduction and to eliminate large stores of printed map copy.

★ ★ ★

THE U.S. AIR FORCE had its safest flying year in history during 1960. Compared to the Air Force's previous best year, which was 1959, the major accident rate was reduced 30 per cent; fatal accidents and destroyed aircraft each went down 40 per cent, and dollar losses showed a 19 per cent decrease.

In approximately 7.3 million hours of flying all over the world and under all kinds of conditions last year, the Air Force had only 425 major accidents, as compared to 672 in 1959. The number of major aircraft accidents per 100,000 flying hours dropped from 8.2 in 1959 to a new all-time record low of 5.7 in 1960.

"Particularly gratifying," reported the Air Force Chief of Staff, General Thomas D. White, "is the fact that fatal accidents decreased from 184 to 110. This, in turn, was reflected in reduction of pilot fatalities from 194 to 125 and total fatalities, military and civilian, from 375 to 274."

The Chief of Staff said in-flight mishaps which involved Air Force planes dropped from 32 in 1958 and 27 in 1959 to only 15 in 1960, an over-all reduction of 53 per cent. Most of these were aircraft flying in formation or on operational rendezvous such as in-flight refueling.

NICE CATCH—An Air Force C-118 Packet from Hickam AFB, Hawaii, snags parachute to recover a *Discoverer* capsule.

The total number of aircraft destroyed in air and ground accidents decreased from 472 in 1959 to 283 in 1960. Despite increased costs of modern, high-speed military airplanes, this represented a cut of 19 per cent in dollar losses due to accidents.

Military Air Transport Service also came in for special praise. Last year was the second consecutive year in which MATS had no passenger fatalities.

★ ★ ★

A FIELD X-RAY UNIT small enough to be carried in a medium-size suitcase has been developed for the U.S. Army. It operates through the use of battery-powered portable photoflash units—with the X-ray tube itself having the role of a visual strobe light.

Field medical units will find the new unit of great value in locating metallic or other foreign bodies in wounds, in diagnosing fractures, and in examining internal organs. The new unit provides a diagnostic X-ray at such speed that it will not blur during chest radiography while the patient is breathing normally—especially important when the patient is dazed or unconscious.

Up to now, supporting Army field hospitals, evacuation hospitals and Mobile Army surgical hospitals immediately behind combat divisions in the field, have had to use a unit weighing some 1000 pounds.

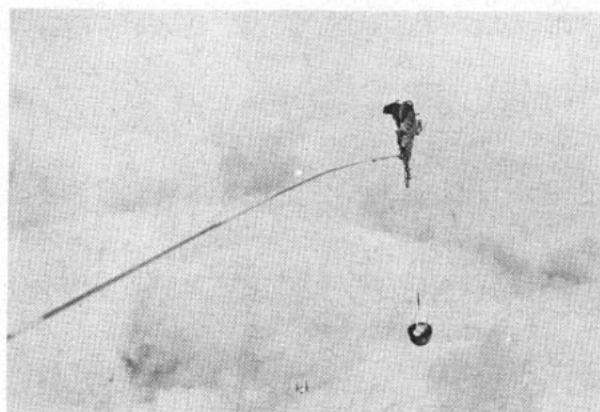
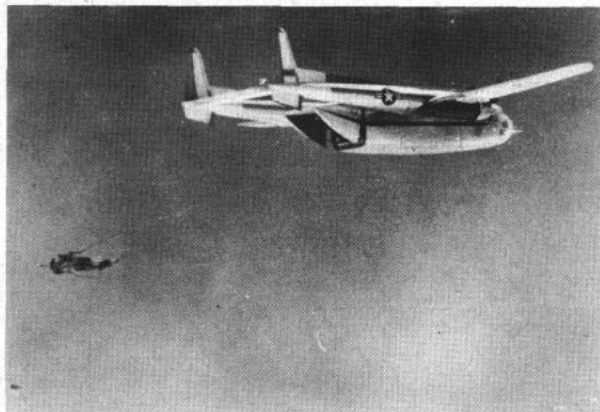
★ ★ ★

A RECENT TEST AND EVALUATION FLIGHT carried the Air Force's airborne command post/communications center, nicknamed *Talking Bird*, on a 45-day, round-the-world tour.

Talking Bird—a specially configured C-97E—visited Latin America, Africa, and both the Near and Far East during its flight. It was the final phase of a five-month test and evaluation program conducted for the Air Force by the Tactical Air Command.

Mounted in the aircraft were single sideband radios, a telephone switchboard, portable radios for remote airfields, and a complete command post with working and living space for eight men.

At various stops, and while airborne around the world, *Talking Bird's* crew tested direct voice and teletype contact with the Air Force Command Post in the Pentagon, and with other Air Force headquarters



around the globe. The Air Force expects that the knowledge gained from the tests will ultimately lead to improved aircraft control in providing emergency airlift support into remote areas with poor communications facilities.

★ ★ ★

FUEL STORAGE may no longer be a problem in the Arctic. The U.S. Army has pumped some 30,000 gallons of diesel oil into a huge ice reservoir 100 feet beneath the surface of the Greenland ice cap.

This oil pit, which has no lining of any type, is located at the U.S. Army Engineer Research and Development Detachment Ice Tunnel, Camp Tuto, Greenland.

Storage of the fuel in this large reservoir of solid ice will in no way detract from its purity. Since the sub-surface temperatures within the ice cavern remain at a constant 17 degrees Fahrenheit, moisture crystals and other matter freeze and settle to the bottom. Because of this, the Army believes that even after years of storage, the oil will still be as pure as the day it left the refinery.

The initial tests in the use of ice reservoirs for storing petroleum fuels were conducted by the Army Engineers in 1957. A small pit was cut in the ice in one of several tunnels and aviation gasoline was poured in for experimental storage. In October 1957, Arctic activities of the Engineers closed for the season. The following April, it was found that none of the gasoline had evaporated and tests showed it contained less moisture than when it was put into the pit six months earlier.

During the winter of 1961-62, fuel from the present reservoir will provide heating and other utility needs for the men of the Army Engineer R&D Detachment, who will work and be housed in the ice tunnel.

★ ★ ★

SUPPLIES WILL GET THERE faster—much faster—after the completion of a current Air Force program to modernize the Military Air Transport Service (MATS).

The Air Force FY 1961 program called for the expenditure of \$30 million to develop a long-range jet transport with a maximum cargo capacity of 70,000 pounds and a capability of taking off fully loaded from a 6,000-foot runway.

The new plane will be powered with turbofan jets and can be loaded at truck-bed height. It will have a 20,000-pound cargo capacity for trans-Pacific flights and 50,000-pound cargo capacity for trans-Atlantic runs.

The military version of the big bird will have provisions for airdropping parachute troops and heavy equipment. It will be built in such a way that it will also be immediately certifiable by the Federal Aviation Agency as a commercial carrier.

★ ★ ★

USE IT AND THROW IT AWAY! Others are doing it, why not use the idea for ordnance? The Army is—for a new anti-tank rocket launcher.

The XM72 rocket grenade is being developed by the Army Ordnance Missile Command at Huntsville, Ala. It can be carried and fired by one man and comes in a throw-away carrying case which also serves as a launcher. Each grenade is fitted with a canvas sling to permit shoulder carrying. As many as four rounds can be car-



JOINING TOGETHER—Various stages of Army's Nike-Zeus missile are assembled at White Sands Missile Range.

ried in a canvas pack slung over the shoulder like a quiver of arrows.

The carrying case is 25 inches long and three inches in diameter. Its outer section is made of fiber glass and its telescopic inner section is aluminum. The inner section is extended before firing.

Propulsion is accomplished by means of a solid fuel motor which burns out before the rocket leaves the tube. Several narrow magnesium fins folded against the motor case spring out when the rocket emerges from the tube to stabilize the rocket in flight.

The weapon is aimed by means of a rear peep sight and a graduated sight imprinted on a clear plastic rectangle at the mouth of the launching tube. The firing mechanism is mounted on top of the launcher tube.

The warhead uses a newly developed explosive known as OCTOL which makes the rocket highly effective against tanks, armored vehicles, concrete bunkers, log emplacements and sand bag fortifications.



NO BEAR GUN—Army's Davy Crockett, a hand- or jeep-portable weapon, fires conventional or atomic warhead.

Memorial Day—Throughout

ON A CERTAIN DAY each year, Navy ships and stations throughout the world display the national ensign at half mast from 0800 to 1220. The occasion is Memorial Day, 30 May. It is a day observed as a holiday by the armed forces, by most of the states and by possessions and territories of the U.S.

At noon of Memorial Day saluting ships and those naval stations having a saluting battery fire a salute of 21 minute-guns. Through such observances the Navy pays homage to its war dead.

Memorial Day dates back to the Civil War era. Two years after the war, women of Columbus, Miss., strewed flowers on the graves of Civil War dead, Confederate and Union alike. This gesture received nation-wide attention. Through the efforts of General John A. Logan, of the Grand Army of the Republic, the ceremony became more and more widespread. It is now carried out on a nation-wide—and in one sense, world-wide—basis. At first it

was known as Decoration Day, but later it came to be known as Memorial Day.

Among Navymen, both active-duty and retired, the observance are not restricted to gun saluting and half-masting of the colors. A long-standing practice of members of the Fleet Reserve Association for example, has been to observe the day with the "laying of wreaths."

In most cases this is a matter of casting a floral design upon the waters. It may be tossed from an underway ship or craft, or from an aircraft, or from a pier or seawall. At locations distant from the sea, the wreath will be placed at the base of some monument having local significance, or placed in the veterans' plot of a cemetery.

Coupled with these actions is the custom, in many places, of refurbishing the graves of those who died in their country's sea service. Such graves will then be marked with a smaller floral display or U.S. flag.

New England, the West Coast,

the Republic of the Philippines, Tokyo Bay, the Azores . . . these were some of the locations where, last year, Navymen held memorial services.

From the decks of the usf *Constitution*, in Boston, Mass., wreaths were tossed upon the waters of the harbor. A firing squad from the Marine Corps Barracks, Boston Shipyard, fired a gun salute as a Marine bugler sounded taps.

Across the country, at sea three miles south of Point Loma, Calif., another flowers-upon-the-waters ceremony took place aboard uss *Vamen* (DE 644). In the Pacific Northwest, at Tacoma, Wash., similar memorial ceremonies were held on board the submarine uss *Gurnard* (SS 254).

In Connecticut, at the mouth of the Thames River, the ceremonies were held on the fantail of the U.S. Submarine Base's tug *Matunak* (YTB 548). A sister large harbor tug, *Hisada* (YTB 518), played a similar role in Tokyo Bay. *Hisada* operates out of the Yokosuka Naval Base.

Ceremonies took place aboard even smaller craft. A motor torpedo boat from the Mine Defense Laboratory, Panama City, Fla., carried the participants to the wreath-tossing site on the Gulf of Mexico. At Monterey Bay, Calif., the ceremonies were conducted on board a large motor launch from the Post Gradu-

TAPS are sounded on the *Mississippi*.



ALL HANDS

the World

ate School. A crash boat based at NATC Patuxent, Md., was the key vessel in ceremonies held on the Chesapeake Bay.

At some locations wreaths were dropped from aircraft. At Norfolk, Va., it was a helicopter from NAS Oceana. At Port Isabel, Texas, a helicopter from the local NAAS did the wreath-dropping honors. Navy copters also took part in the ceremonies at Jacksonville, Fla., and Whidbey Island, Wash.

Memorial Day observances were held at many waterside locations. They were conducted atop a levee at the New Orleans, La., Naval Station, in a ceremony in which a floral bouquet was tossed upon the Mississippi. They were held aboard a platform erected on the sunken battleship *Nevada*, in Pearl Harbor, Hawaii. In Napa, Calif., they were held on a bridge over the Napa River. At St. Petersburg, Fla., they were held at the Municipal Pier.

Navymen on duty at Terceira Island, Azores, took part in memorial services on the seawall of the small fishing village of Praia da Vittoria.

At various cemeteries throughout the country, wreaths were laid at monuments, memorials, or flagstaff bases. In Pensacola, Fla., for example, this was done at the war monument, Fort Barrancas National Cemetery. At Chico, Calif., it was



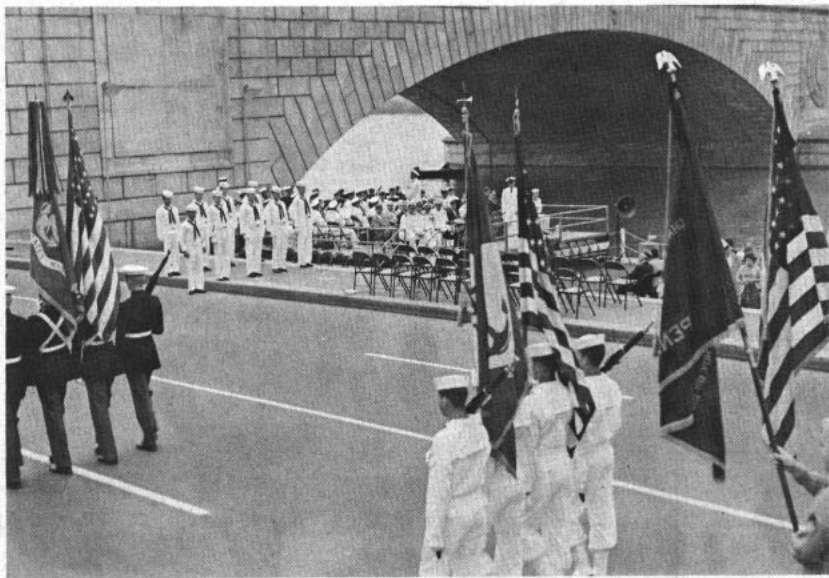
ON THE WATER—Wreath-laying ceremony on boat of Navy Mine Defense Lab, Panama City, Fla. Below: Navymen march at NAAS Port Isabel, Texas.

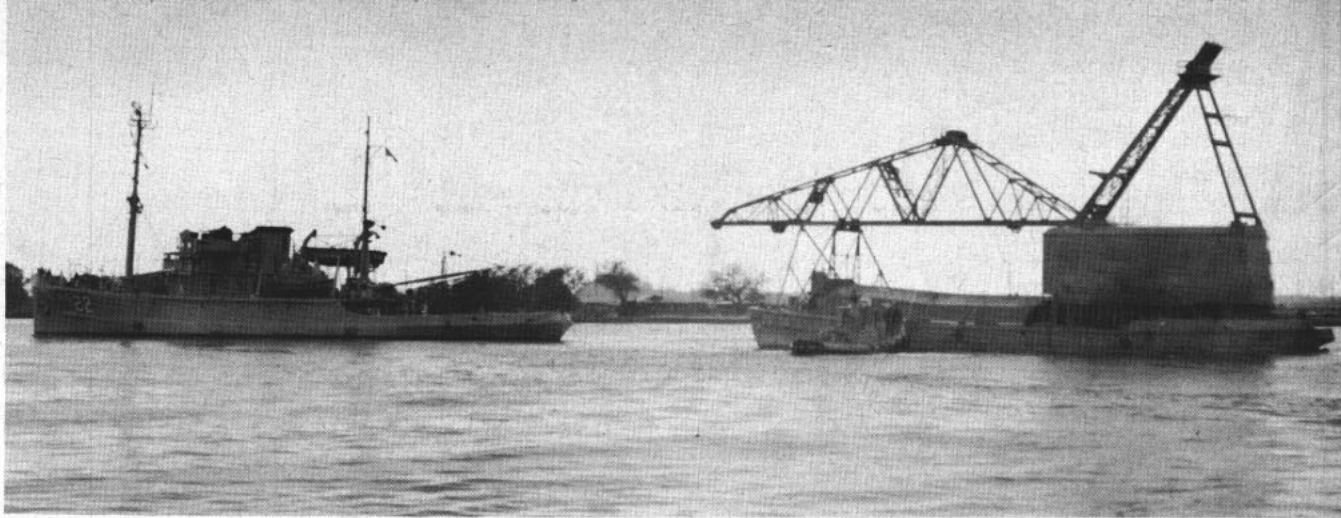
done at the Grand Army of the Republic monument in Chico Cemetery; while at San Antonio, Texas, it was done at the base of the flagstaff at the Fort Sam Houston National Cemetery.

Memorial Day ceremonies in the Washington, D.C., area are held in three locations. Two are in Arlington National Cemetery—at the base of the mast of the battleship *Maine* (now a memorial) and at the Tomb of the Unknowns. A third is held at the Watergate, which is alongside the east bank of the Potomac River, close by the Lincoln Memorial. This, too, is a flowers-upon-the-waters ceremony. —Bill Miller, JOCM, USN



IN MEMORY—One of a group of boats cruises with colors aboard. Right: Navymen set to float wreath on Potomac.





ON THE TOW—Army crane is positioned behind *USS Current* (ARS 22) by harbor tugs at beginning of 4000-mile trip.

Little Ship with a Big Pull

ASK ANY FLEET TUG skipper and he'll tell you—no tow is an easy tow—for every tow, regardless of size, is a calculated risk.

Nevertheless, the Army wanted a 1500-ton floating harbor crane moved from Pearl Harbor, Hawaii, to Naha, Okinawa—a distance of about 4000 miles—and the rescue salvage ship *USS Current* (ARS 22) was assigned the towing job.

When the report on what had to be done to prepare the crane for sea was completed, the craft was turned over to shipyard workers at Pearl Harbor. Under the supervision of experienced *Current* crewmen, the workers began a month-long job of welding, fastening and removing items listed in the report.

At the same time, LT G. J. Evans, USN, commanding officer of *Current*, along with staff members of the Pacific Service Force Headquarters, was studying the predictions of how

the crane would handle at sea.

It was determined that since the flat-bottomed craft had no skeg or rudder to help guide it through the water in the track of *Current*, it would sway at wide angles behind the ship. Should a quarter wind catch hold of the crane, it would move up alongside. In an effort to have maximum control of this possible situation, the group decided the crane would be towed some 500 yards aft.

Among the numerous problems and perhaps the most important—other than preparing the craft for sea—was the sailing course to Okinawa.

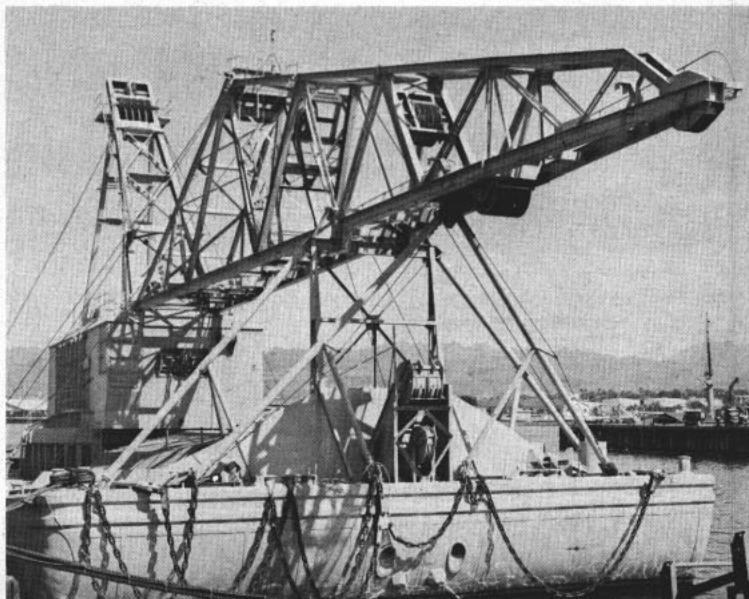
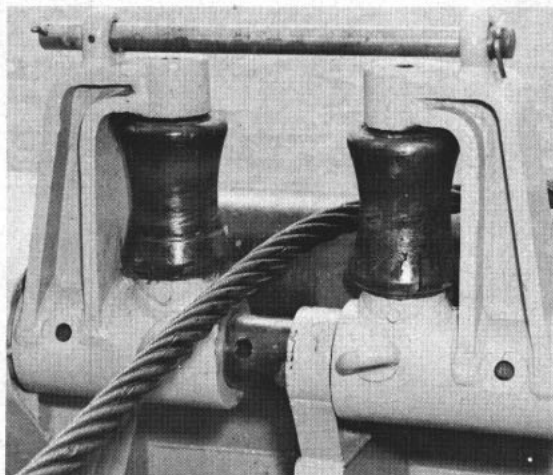
The southern route was decided upon even though the northern route was shorter by 1000 miles. The risk was too great to attempt to tow in North Pacific waters at this time of year and too, there would be no refueling stations along this way.

By taking the southern route, *Current's* speed would range around eight knots—three knots faster than by the northern route—and fueling stops could be made at both Kwajalein and Guam. The nearer the destination, the greater the importance of keeping near maximum fuel in the tanks, owing to entering the typhoon area.

The morning of 26 Jan 1961 marked the beginning of the tow, and *Current's* crew was confident of making a safe delivery. Fuel stops were made at Kwajalein and at Guam. Twenty-seven days after leaving Pearl Harbor, and right on schedule—*Current* steamed into Naha and delivered the crane to the Army.

With the risky towing job completed, *Current's* crew looked forward to ports-of-call during the remainder of the four-month Far East cruise. — Marc Whetstone, JO2, USN

RIG AND RIGGED—Two-inch cable connects ship to tow. Right: Fifteen hundred-ton harbor crane is rigged for sea.



LETTERS TO THE EDITOR

Half-Wellingtons for Chiefs

SIR: It seems to me the most recent edition of *Uniform Regulations* is vague on the subject of Half-Wellington boots. It's easy to see that officers are still authorized to wear them, but I cannot determine whether or not chiefs can.

If Half-Wellingtons are regulation for CPOs, why doesn't *Uniform Regs* say so in Chapter 6?—R.L.W., YNC, USN.

• *Half-Wellington boots are still authorized for both chiefs and officers. Chapter 6 (Male CPOs) of "Uniform Regulations" does not specify Half-Wellingtons by name, but does state in Art. 0630: "Officer-type uniforms worn by CPOs are the same as those described in section 3 of chapter 1 for male officers." There (0131.f) you can find the authorization for Half-Wellingtons.*

You should note that the manual lists uniform differences between chiefs and officers after the above quoted explanation. Half-Wellingtons, however, are not one of these differences.—ED.

Statement of Personal History

SIR: When is a Statement of Personal History (DD-398) prepared for an officer's service record? How often should it be brought up to date? Is there any reason why a new one cannot be prepared whenever the old one is out-dated or contains insufficient or incorrect information?

BuPers Manual, Article B-2207 states that there will be one in an officer's service record, but does not say when it is to be prepared.—E. P. M., YN2, USN.

• *A Statement of Personal History (DD Form 398) is normally executed before an officer's commissioning and is incorporated into his service record. This practice began around 1954 and it is possible that some records do not contain DD Form 398. The form should be executed in such cases by officers below flag rank.*

There is no explicit provision for re-execution or up-dating of the service record copy of DD Form 398, since it is basically designed for use in conjunction with security investigation. Therefore, it would seem unnecessary to re-execute or up-date the form unless there were some specific reason for doing so, such as a need for cryptographic clearance, or initiation of a new security investigation.—ED.

Change of Rate

SIR: I have two questions which concern changing my rate from YN2 to PN. First, if my change-of-rate request is approved, would I take the PN2 test the next time exams are adminis-

This section is open to unofficial communications from within the naval service on matters of general interest. However, it is not intended to conflict in any way with Navy Regulations regarding the forwarding of official mail through channels, nor is it to substitute for the policy of obtaining information from local commands in all possible instances. Do not send postage or return envelopes. Sign full name and address. Address letter to Editor, ALL HANDS, Room 1809, Bureau of Naval Personnel, Navy Dept., Washington 25, D. C.

tered (August 1961), or do I wait until I would normally be eligible for the YN1 exam (February 1962), and take the PN1 instead?

Second, assuming I take the PN2 exam, would I become eligible for PN1 two years from the date I successfully took the YN2 exam (February 1960), or would I have to wait for two years after I make PN2?—C.A.H., YN2, USN.

• *If your request were approved you would take the next PN2 exam. If successful, your rating would be changed in equal pay grade.*

Time creditable toward service in pay grade for advancement to E-6 commenced on the date you were advanced to pay grade E-5 (YN2). In other words, if you pass the PN2 exam in August, you'll be eligible for PN1 the following February, as by then you will have served (for advancement purposes) two years in pay grade E-5.—ED.

"Contingency Option" Deadline

SIR: I never fail to find disagreement when the words "Contingency Option" are mentioned. Some instructions say a person must submit forms relating to his choice of options before the end of his 18th year of service. Others say he must sign them before 2400 on the date he completes his 18th year for pay purposes. Which is correct?

Also, what is a person's 18th year of service for pay purposes? I maintain it is the complete year before the day the person starts drawing 18 years' longevity pay. Am I correct—T.L.A., BT1, USN.

• *To participate in the Uniformed Services Contingency Option Act you must choose your options BEFORE COMPLETING 18 YEARS for "pay purposes."*

You're right on service for longevity pay. Example: If you were eligible for 18 years' longevity on 15 Nov 1960, the deadline for making your contingency option choice would have been 2400 the day before. BuPers Inst. 1750.1C is the authoritative reference.—ED.

Rates on ID Cards

SIR: There was an article in Change No. 4 to *BuPers Manual*, which was issued in November 1960, that has caused some confusion as to the issuing of liberty cards to personnel in pay grades E-6 through E-9.

Article C-6210 states that DD Form 345 will be issued to all personnel in pay grades E-1 through E-5. For other enlisted personnel, DD Form 2N (Armed Forces Identification Card) will normally suffice to cover absences not classified as leave.

Several first class petty officers at this command have asked how they can be identified when their ID card does not indicate grade for first class petty officers.

Change No. 4, Article B-2103, changed the grade identification for pay grades E-7 through E-9, but not for first class petty officers.

Is the Bureau anticipating a change to indicate on DD Form 2N the pay grade for E-6 personnel instead of the word "Petty Officer"?—R.D.S., PN2, USN.

• *Article B-2103, "BuPers Manual," is being revised in Change No. 5 to require enlisted grades to be entered on the DD Form 2N (Armed Forces Identification Card) as follows:*

Pay grades E-1 through E-3—Non-Petty Officer.

Pay grades E-4 through E-9—PO3, PO2, PO1, POC, POCs and POCM, as appropriate.—ED.

SIR: I understand that some ships and stations are no longer issuing liberty cards to PO1s and above. What's the word on this?—E.T.H., TM1, USN.

• *It will be true as soon as your ship or station gets the word. This may be found in Change No. 4 to the "BuPers Manual" (dated 7 Nov 1960).*

Article C-6210 points out that the liberty card "Armed Forces Liberty Pass" (DM Form 345), which is the only pass issued to cover absences of enlisted personnel not classified as leave, will be issued to personnel in pay grade E-1 to E-5.

The article continues: "For other enlisted personnel, the DD Form 2N (Armed Forces Identification Card) will normally suffice to cover absences not classified as leave."

Another change is in the mill. Article C-6201 is being revised to include pay grade E-5 as not requiring a liberty card. Article B-2103 is being revised to require PO3, PO2, PO1, POC, POCs or POCM to be entered on the ID card of those in pay grades E-4 to E-9. This will provide recognition for all petty officers on liberty and not in uniform.—ED.



BACKFIRING — The destroyer USS Parsons (DD 949) is one of the first U.S. warships with guns arranged to provide more firepower aft than forward.

How Many Steps to Judo?

SIR: I came across the October 1960 issue of ALL HANDS only recently. In the article on page 39 (Navy Judo Expert) there seem to be a few discrepancies, as follows:

Quote—13th step, just four rungs from the top in judo hierarchy, at the age of 23—unquote. Where does Airman Wrobel begin counting his “steps,” anyway?

If, for example, he started as a beginner and advanced 13 steps, this would bring him up to and including the eighth grade of a graded black-belt *Judoka*. If this were so, and he was “just four rungs from the top,” he would have to progress to the 12th grade of black belt. This is impossible—there are only 10 grades of black belt. If, on the other hand, he started counting from the first grade of black belt, he is stating that he is now 13th grade reaching for 17th grade black belt. He will have quite a way to reach, since,

as I have already pointed out, it would be impossible to attain.

A correct listing of judo grading is as follows:

<i>Beginners</i>		
<i>Gokyu</i>	5th kyu	White Belt
<i>Yonkyu</i>	4th kyu	White Belt
<i>Sankyū</i>	3rd kyu	Brown Belt
<i>Nikyu</i>	2nd kyu	Brown Belt
<i>Ikkyū</i>	1st kyu	Brown Belt

Ikkyū is the highest class of beginners. Normally all beginners wear a white belt, and are only awarded a *kyū* starting from *Sankyū*. It is not necessary to advance through the different classes of brown belt before being graded to black. A person may advance directly from white to first grade black-belt status.

A graded *Judoka* wears a black belt. There are ten grades, as follows:

<i>Shodan</i>	1st dan	Black Belt
<i>Nidan</i>	2nd dan	Black Belt
<i>Sandan</i>	3rd dan	Black Belt
<i>Yondan</i>	4th dan	Black Belt
<i>Godan</i>	5th dan	Black Belt
<i>Rokudan</i>	6th dan	Red and White Belt
<i>Shichidan</i>	7th dan	Red and White Belt
<i>Hachidan</i>	8th dan	Red and White Belt
<i>Kyudan</i>	9th dan	Red Belt
<i>Judan</i>	10th dan	Red Belt

The black belt is usually worn by all graded *Judoka*. However, the red and white is sometimes worn by the high grade holders as a mark of distinction during exhibitions and ceremonies.

The above system of grading is used by the Kodokan Institute of Judo, Tokyo, Japan. As a first-grade black belt (*Shodan*) and a member of the Kodokan Institute, I found the article most amusing. I just wonder whether ALL HANDS misquoted Airman Wrobel, or whether the Airman is setting himself higher than the founder of judo, Professor Jigoro Kano.—R. L. Bruncati, GYSGT, USMC.

• Turn us loose, *Gunny* — 'tweren't

our fault. The article in question was based on information supplied to us by Airman Wrobel's duty station, which, presumably, got it from Wrobel himself. And we swore never to argue with anyone who knew judo—until we had a few lessons ourselves.

It may be that, rightly or wrongly, Wrobel was referring to some different (and obscure to you) form of grading than the one you outlined so thoroughly and impressively in your letter. What say, Airman Wrobel? Or any of you experts?

In any case, we also make it a point never to argue with an expert on a subject with which we are not familiar, particularly if he is a Marine. Sankyū. —Ed.

Boatswain's Mate

SIR: Increasingly of late, I have been hearing active duty BMs speak of themselves as “boat swains.” That is, they pronounce each word separately. And I have heard men of other ratings, as well as line officers, use the same lubberly lingo.

Does this mean the Navy is becoming so completely chairborne that true sailors, bo's'n's mates included, are to be found only in Fiddler's Green?—P.A.H., CAPT, USNR (Ret.)

• Except in jest, or on some TV plays, we haven't heard BMs called “boat swains.” Unless our ears are deceiving us, the common pronunciation is still “bosun” or “bos'n” or “boatsun.” In the latter case the “t” is almost silent.

No matter how you pronounce the name, the BMs of today's Navy are A-1 seamen and top-rate sailormen. And when they pass away, they can stand shoulder to shoulder with the old-time bo's'n's in Fiddler's Green.

(It's been nigh on to 12 years since ALL HANDS carried the word on Fiddler's Green. For the benefit of those newcomers who have not yet heard of this place, it is the sailor's traditional concept of paradise and, so far as we know, is

Ship's Bell and Whistle

SIR: Who is assigned the duty of shining the ship's bell and the ship's whistle?—J.F.E., Jr., HM3, USN.

• Traditionally, the ship's cook shines the ship's bell and the ship's bugler shines the ship's whistle.

In practice the ship's bell is usually maintained by a man of the ship's division charged with the upkeep of that part of the ship where the bell is located. In such a case a deck seaman or quartermaster striker or signalman striker would have the bell-shining duty.

The same would hold true for the ship's whistle—provided the whistle is of a material that can be left exposed and unpainted.—Ed.

Anchor Ball

SIR: Aboard our ship we signalmen are having a discussion about the display of the anchor ball.

Some say it should be taken down at sunset. Others maintain that it should be left up during the entire period the ship is at anchor. That is, it should be displayed both day and night. Could you enlighten us on this? —T.T., SM3, USN.

• The sections of the “Rules of the Road” that deal with display of the anchor ball (a black ball at least two feet in diameter) use the words “between sunrise and sunset.” This would indicate that at sunset (when the anchor lights are turned on) the anchor ball should be hauled down.—Ed.

the only heaven claimed by an occupational group as its own. It is restricted to sailors and to those who would help make the sailor's after-life even more delightful.

(In Fiddler's Green, there is no reveille, but there is lots to eat all day long, plenty of shore duty, and everything is free. There is no waiting in line, and all uniforms are non-regulation. The principal occupation is singing—if you like to sing—and dancing with lovely ladies.)

Ah, well. Back to the old typewriter.
—Ed.

Selections of Chiefs for LTJG

SIR: The one-shot selection of 18-and-one-half-year CPOs to LTJG (LDO-T) poses a situation on which I would appreciate some concrete information.

I was selected for WO-1 from the 1958 applicants under the annual LDO-WO program. Subsequently, and prior to my appointment to WO-1, I was selected from this group, by a special board, for Ensign, LDO-T. I accepted appointment with a date of rank of 1 Jan 1960.

When the 18-and-one-halfers are appointed LTJGs (presumably with a date of rank of 1 Nov 1960), they will automatically become senior to my group without examination and competition against the regular annual applicants. These men appear to be a group who have either applied previously and failed selection, or who did not take the initiative to apply at all under the annual LDO-WO program.

I have been informed that year group 1959 LDO-T selectees will not be affected by this one-shot CPO to LTJG program, since the 18-and-one-halfers will be at the point of retirement when we reach the LCDR selection stage. This does not alter the fact that these men will be our seniors for many years in the interim.

—ENS W.D.R., USN.

• The CPOs with 18-and-one-half years of service who are selected for appointment as LTJG under the provisions of Alnav 26, will be assigned dates of rank of 1 Dec 1960. They will, therefore, become senior to your group, which was appointed ensign on 1 Jan 1960.

These CPOs, who possess technical skills gained through some 20 years' experience, are too old to be commissioned as ensigns. By making the higher commissioned grade available to them, the Navy expects to retain many men who might otherwise be transferred to the Fleet Reserve, and, at the same time, fill an urgent need for additional highly trained junior officers.

And you must remember one other point. During the years in which these CPOs were eligible to apply under the LDO program, their chances of selection were slimmer than they were when you were selected, and during those



NO LIGHTWEIGHT — The 10,670-ton guided missile light cruiser *uss Little Rock* (CLG 4), formerly (CL 92), is equipped to fire *Talos* guided missiles.

same years, there was a limit as to how many times one could apply for such consideration.

A random examination of records of these CPOs reflects exceptionally high caliber individuals, many of whom had repeatedly been recommended by their commanding officers for officer status. The Chief of Naval Personnel is confident that the capabilities and experience of this group of men will make the seniority factor relatively unimportant.

Rank inversion is not new as you well know, and since it is happening at this point, it should not be detrimental to your career.—Ed.

Designating Class of Warship

SIR: I have noticed what may be a mistake in the article "Cruisers Are Better Than Ever" in the December 1960 ALL HANDS. On page 4 it says *uss Des Moines* (CA 134) is a *Salem*-class cruiser. Since *uss Salem* (CA 139) has

a higher number, shouldn't it be the other way around?

Also, *Des Moines* was not only launched six months earlier than *Salem*, but was also commissioned (17 Nov 1948) six months earlier than *Salem*.

Why, then, shouldn't that class of heavy cruiser be called the *Des Moines* class?—W.A.S., RD1, USN.

• There has long been considerable confusion as to which ship was in whose class. It's still the *Salem* class, however.

In designating a class of warship, the main point of reference used by BuShips officials is the date the contract was let for a given ship—and not the keel-laying, launching, or commissioning date. It so happens that *Salem* was contracted for in June 1943, while *Des Moines* was contracted for in September of that year.

The contract for the third ship of this class—*uss Newport News* (CA 148)—was awarded in April 1944.

In this connection, the 1956-57 edition of "Jane's Fighting Ships" calls them *Des Moines* class cruisers, but more recent editions call them *Salem* class cruisers.—Ed.

Stars on Combat Aircrew Wings

SIR: A controversy has been raging for several years concerning the original requirements for stars on combat aircrew wings. I would appreciate it very much if you could tell us what the original requirements were.—D.K.F., ATCS, USN.

• According to BuPers Circular Letter No. 90-43 of 29 May 1943, unit commanders authorized individual combat stars for air crew members who:

Engaged enemy aircraft, singly or in formation.

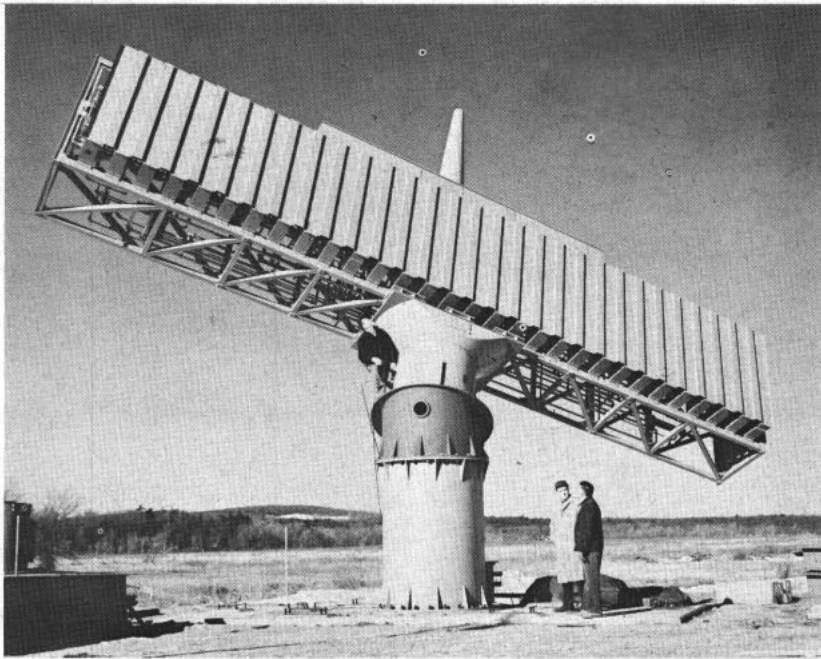
Engaged armed enemy combatant vessels with bombs, torpedoes, or machine guns.

Engaged in bombing or offensive operations against enemy fortified positions.

Will this settle the controversy?—ED.



LONG CRUISE—VADM E. W. Grenfell presents Letter of Commendation to W. H. Pratt, TMC, who was detached from *uss Cubera* (SS 347) after 15 consecutive years in the sub.



KING SIZE—New sea-going radar, designed to baffle enemy attempts to jam it and give early warning of air attack, weighs ten tons, has 40-ft. antenna.

The Battles of Bunker Hill

SIR: Can you give me some information on *uss Bunker Hill* (CV-17)? I would like to know its history and its location at the present time.

I know many older carriers were scrapped but I think *Bunker Hill* was in the Korean conflict.—R.S., ex-USN.

• *Bunker Hill*—now AVT 17—was the ninth carrier of the Essex class of 1940-1941 and the first Navy ship named for that famous battle. She was launched on 7 Dec 1942.

She saw her first action in an air attack on Rabaul, New Britain, in November 1943 when she took a heavy toll in Japanese planes and shipping.

Bloody Tarawa was next on her list. The carrier's planes struck at dawn on 17 November and completely wiped out enemy air facilities and destroyed all planes. All day long, they pounded dugouts, gun emplacements and shore installations.

Next day, Marines went ashore to root out the remaining Japanese, with *Bunker Hill*'s planes furnishing what support they could. At nightfall, 16 enemy bombers attacked the invasion fleet. Six were seen to fall to *Bunker Hill*'s antiaircraft fire.

In December, she inflicted considerable damage on enemy shipping at Nauru in the Gilbert group and on Christmas Day, struck the important enemy base at Kavieng on the northern tip of New Ireland. Here *Bunker Hill* and the task force wreaked havoc on harbor shipping and turned away unscathed. Halfway back to base, however, information was received that new shipping was at anchor in Kavieng Harbor with other ships arriving.

The second strike came on New Year's Day with 20 to 30 enemy aircraft shot down as a result.

In mid-January 1944 *Bunker Hill* put to sea again, headed for the Marshall Islands to hit Kwajalein, Ebeye and Eniwetok Atoll, where massed Japanese bombers were destroyed on the runways.

Bunker Hill next headed for the major Japanese fleet base of Truk in

Bushnell Has Lots of Stars

SIR: It seems the new STAR program is working very efficiently on board *uss Bushnell* (AS 15) at Key West, Fla.

Between November 1960 and March 1961 *Bushnell* had 26 STAR reenlistees. Also during this period, 24 career men shipped over.

Over-all, out of the 106 men who were processed, 50 reenlisted, a rate of slightly over 47 per cent.

However, this is just the beginning. We plan on an even larger ship-over percentage during the next three months.—J.M.P., PN2, USN.

• We'll be watching for a report. Your reenlistment record appears to be evidence of the interest the STAR program has drummed up among men who might otherwise leave the Navy. (This program—Selective Training and Retention—was introduced last year. It guarantees an appropriate school and automatic advancement for eligible first termers who reenlist to attain career status. The STAR procedure is outlined in BuPers Inst. 1133.13.)—ED.

the Caroline Islands. On 16-17 Feb 1944, her planes took off, smashing shore installations and sinking the ships which crowded the lagoon. Such ships as could, tried to escape, but tactical surprise was complete and damage to the enemy was great.

One of the ships attempting to escape was the Japanese light cruiser *Naka*, which was sent to the bottom by *Bunker Hill*'s torpedo squadron.

The carrier continued to cover herself with glory at Tinian, Woleai, New Guinea, Saipan, Pagan, Guam, Iwo Jima, Haha Jima, Chichi Shima, Palau, the Philippines, Leyte, Okinawa, Formosa, Cebu and Saipan.

Her planes, with those of other American carriers, did a magnificent job in turning back and destroying four massive waves of several hundred enemy planes before they reached her carrier force. On 20 Jun 1944, her planes joined in a strike on the fleeing Japanese First Mobile Fleet, scoring hits on an enemy battleship and assisting in sinking the carrier *Hiyo*. One torpedo was observed to catch one of the destroyers.

On 7 Apr 1945, *Bunker Hill*'s planes inflicted even heavier blows on the Japanese fleet. Planes from the carrier assisted in sinking the battleship *Yamato*, the light cruiser *Yahagi* and four destroyers, and left two destroyers in flames.

On 30 Jun 1946, *Bunker Hill* was awarded the Presidential Unit Citation for "Extraordinary heroism in action against enemy Japanese forces in the air, ashore and afloat in the South, Central, Southwest and Western Pacific from 11 Nov 1943 to 11 May 1945."

During her career, she shot down 430 planes in the air, destroyed 230 on the ground and sank 140,803 tons of enemy shipping. The ship's antiaircraft guns shot down 20 enemy planes.

She earned 11 battle stars on the Asiatic-Pacific Area campaign medal.

On 9 Jan 1947 she was placed out of commission, in reserve, attached to the U.S. Pacific Reserve Fleet. She has remained in reserve ever since.—Ed.

Authorized Pro Pay

SIR: While checking the Quiz Aweigh answers for November, I noticed what may be an error in ALL HANDS. According to the answer in Question 3, the authorized pro pay for P-1 is \$50 a month while for P-2 it is \$100.

Would you please clarify this? At present, as a P-2, I am receiving pro pay of \$60—not \$100—a month. And while a P-1, I received pro pay of \$30—not \$50—a month.

—F.W.D., RM1(SS), USN.

• Always glad to clarify any pay matter. Proficiency pay came into being with Public Law 85-422. Under that law, the Secretaries of the armed services are authorized to pay pro pay

Ship Reunions

News of reunions of ships and organizations will be carried in this column from time to time. In planning a reunion, best results will be obtained by notifying the Editor, All Hands Magazine, Room 1809, Bureau of Naval Personnel, Navy Department, Washington 25, D.C., four months in advance.

• *uss Memphis* (Armored Cruiser No. 10)—A reunion is scheduled at the Emerson Hotel, Baltimore, Md., 27-30 August. For details write to Sam Worth, 4019 Stillmore Rd., Cleveland 21, Ohio.

• *uss New Mexico* (BB 40)—The fourth annual reunion will be held on 5 August at the Lafayette Hotel, Long Beach, Calif. For additional information, write to D. J. Cady, 632 Raycroft Ave., Long Beach, Calif.

• *uss Washington* (BB 56)—A reunion is scheduled for 1-4 July at the Sheraton-Jefferson Hotel, St. Louis, Mo. Write to Harry Midkiff, 483-12th St., Brooklyn 15, N. Y.

• *uss Yorktown* (CV 10)—Two reunions are planned this year. The East Coast reunion will be held 2-4 June at the Belmont Plaza Hotel, New York City. For details write to James T. Bryan, Jr., 67 Wall St., New York 5, N. Y. The West Coast reunion is scheduled for 9 June at the Lafayette Hotel, Long Beach, Calif. For more information write to Larry Raymond, 959 Crenshaw Blvd., Los Angeles 19, Calif.

• *40th Seabees*—The 17th reunion is scheduled for 6-8 October at the Hotel Whitcomb, San Francisco, Calif. For details, write to Lyle A. Bramson, 15 Crane Dr., San Anselmo, Calif.

• *93rd Seabees*—the 12th annual reunion will be held 31 August-2 September, at the La Salle Hotel, South Bend, Ind. For information, write to Edwin Pearson, RR #3, Plymouth, Ind.

• *Tufts College Navy Class, June 1946*—A reunion will be held at Tufts

University from 8-10 June. For more details, write to Ray Mur, 304 Colony St., West Hempstead, L.I., N.Y.

• *uss American Legion* (APA 17)—All who are interested in attending a reunion may write to Nick Bongiorno, 688 Clifton Ave., Clifton, N. J.

• *uss Des Moines* (CA 134), 'Mike' Division—A reunion is being planned for the crew of "M" division serving from 1955 to 1958. For more details, write to Harold Houghton, 54821 Charles Ave., South Bend 28, Ind.

• *uss Vincennes* (CA 44)—All who are interested in holding a reunion may write to LT L. P. Mooney, USNR (Ret), 160 Main St., Kingston, Mass.

• *VF 12*—A reunion is being planned for all officers who served in 1943 in Fighter Squadron 12, on board *uss Saratoga* (CV 3), in Pensacola, Fla., early in June. For details, write to Marvin Harper, 537 Riverside Ave., Jacksonville, Fla.

not to exceed the maximum rates prescribed in the law. These rates are \$50 for P-1, \$100 for P-2 and \$150 for P-3.

Each year the Secretary of Defense prescribes the authorized pro pay rates for all the services. The rates for the fiscal year 1961 program are \$30 for P-1 and \$60 for P-2.

The implementing regulations for pro pay in the Navy are contained in BuPers Inst. 1430.12B.—Ed.

Dewey Is in Which Class?

SIR: In your January issue you referred to *uss Dewey* (DLG 14) as being the first in both the *Farragut* class and *Coontz* class of guided missile frigates.

Which is it?—C.L.O., PNC, USN.

• *Dewey* was the first ship of the *Coontz* (DLG 9) class to be commissioned.

At one time, under *Ship Characteristics Board Project 129*, there was to have been a *Farragut* class, and these ships were started as *destroyer leaders, DL 6* class. However, they were changed to *DLG* (guided missile frigate type) ships during their construction period by *Ships Characteristics Board Project 142*. Apparently the former designation caused the mix-up.—Ed.

Record Time Overseas

SIR: *uss Des Moines* (CA 134) was deployed as Sixth Fleet flagship in the Mediterranean for 33 consecutive months. She returned to the U.S. in March 1961 after some 37 months in Mediterranean waters.

As a result of this cruise, (her last before going into the Reserve Fleet) I wonder if she set any records. Can you answer the following questions for me?

a. Has any U.S. Navy cruiser ever

been deployed with any Fleet for more than 37 consecutive months without returning to the States?

b. Has any U.S. Navy cruiser held a Fleet flag for longer than 33 consecutive months?

c. Has any U.S. Navy cruiser been homeported overseas for longer than 33 months?

d. Has any homeward-bound pennant been longer than *Des Moines*'? Ours was 272 feet long.

If our ship didn't set a record for these items, we are interested in the ships that have beaten us.—M.C.M., LTJG, USN.

• *Your ship has been outdistanced on all counts by at least one ship, uss Augusta* (CA 31). She was deployed to

the *Asiatic Fleet* as flagship in 1933, and didn't return to the United States until November 1940.

During the seven years in *Asiatic waters*, *Augusta* cruised in the area of *China, Southeast Asia, Japan, the East Indies and the Philippines*. She was involved in some rather delicate situations during that time. A certain Captain *Chester W. Nimitz*, who was later to become well known in naval history, commanded *Augusta* during part of her deployment.

When *Augusta* finally returned to the United States in 1940, she was flying a 700-foot homeward-bound pennant.

We hope you don't feel too unhappy about this. At least your ship's record was surpassed by another cruiser.—Ed.

BACKING IN—Attack aircraft carrier *uss Hancock* (CVA 19) eases into dry-dock at Yokosuka in an unusual stern-first entry for work on aft section.



Little Tug, Big Tow

SIR: On 3-4 October the Essex-class carrier *uss Philippine Sea* (AVT-11) formerly (CVA-47) was towed from the Long Beach Group, Pacific Reserve Fleet, to be placed in mothballs with the San Diego Group, Pacific Reserve Fleet. The job took a total of 24 hours including pick-up and delivery time for the 92-mile trip. *uss Chowanoc* (ATF-100) did the work.

Philippine Sea displaced 26,000 tons on the trip. Although it may not have established an all-time record, this was the heaviest tow accomplished by a Pacific Fleet ATF in recent years.

According to a San Diego television commentator, she is the heaviest ship ever to be towed through San Diego Harbor.

This job was another highlight in the career of *Chowanoc*, a 16-year veteran with an illustrious record that includes the shooting down of four Japanese planes during World War II.

The present crew is proud to add to this tradition.—R. J. F., LT, USN.

• *Chowanoc did indeed do her job well during WWII—also during the Korean conflict. She received four WWII battle stars and one for Korea.*—Ed.

Training Parachute Riggers

SIR: I am aware that personnel shortages are causing problems all over the Navy, so I'm not claiming the situation in my squadron is unique. However, here's my problem.

The squadron is split up, with six planes in the Med, and six at Sanford, Fla. We recently lost a parachute rigger third class through discharge, and now have just one PR2 in the Med, and one first class (me) at Sanford—hardly adequate for better than 60 parachutes, and 80 to 90 flight personnel.

Now to look on the brighter side of things for a moment—I do have two

Souvenir Books

In this section ALL HANDS prints notices from ships and stations which are publishing souvenir records and wish to advise personnel formerly attached. Notices should be directed through channels to the Chief of Naval Personnel (Attn: Editor, ALL HANDS), and should include approximate publication date, address of ship or station, price per copy and whether money is required with the order.

Mobile Construction Battalion Four is publishing a cruise book which covers its Guantanamo Bay deployment of 1960 and also Detachment Kilo's work during the past year.

Anyone who would like a copy of the cruise book should send \$5.00 (by postal money order) to: Editor, Cruise Book, USN MCB Four, c/o Fleet Post Office, New York, N.Y.

very hard-working and efficient non-rated men working for me in the parachute loft. They both want to be parachute riggers, and I would like to qualify them right here in the squadron, by letting them perform their practical factors in accordance with NavPers 760. However, our I & E office tells me that these two men cannot take the examination for third class PR until after they have completed Class "A" PR school. If we were to send them to school, though, they would be ordered on a non-returnable basis—and there I'd be.

I don't see why attendance at the Class "A" School, in order to go up for third class, should still be mandatory, since I've received unofficial word that making a parachute descent is no longer a requirement at the school. It seems to me that it was the parachute descent, and not the school itself, that was the requirement for third class in the *Qualifications Manual*.

New subject—packing and installing drag chutes. I am of the opinion that

drag chutes should be delivered to the loft for packing, but that aviation structural mechanics should actually install them in planes. In other words, PRs should decide if the chutes are in satisfactory condition for reuse, and AMs should hook them up, so as to be able to recognize any faulty or out-of-tolerance linkage or doors.

What is your opinion on this?—A.W., PR1, USN.

• *Since you ask our opinion—we agree with the contention contained in your last paragraph. Packing and installing drag chutes is not in the PR quals as listed in NavPers 18068. However, item B.1.1. of the PR rating quals reads "Inspect and pack parachutes"—this should refer to all types of chutes, including the drag type. This is a similar situation to that involving the ejection seat chutes, since it involves part of the structure of the airplane.*

Now in regard to your personnel problem, we must inform you that however praiseworthy we consider your efforts to qualify your men for advancement and, at the same time, to retain their productive services for your squadron, you're out of luck.

While change 16 to NavPers 18068 removed the jumping requirement from the PR rating, PR Class "A" School is still required for advancement to PR3, in accordance with Part II, Para. Two of BuPers Inst. P1430.7D.—Ed.

PO's Grade on Retirement

SIR: In 1950 I was a PO1 in the Naval Reserve, but dropped to PO2 in 1954 when I went into the Regular Navy.

Here's my problem: Will I be able to retire as a PO1—the highest rate I held?—W.C.W., EOH3, USN.

• *No. If you retire, you do so in the grade you are holding at the time of retirement. The same holds true if you transfer to the Fleet Reserve.*—Ed.

...how to send ALL HANDS to the folks at home

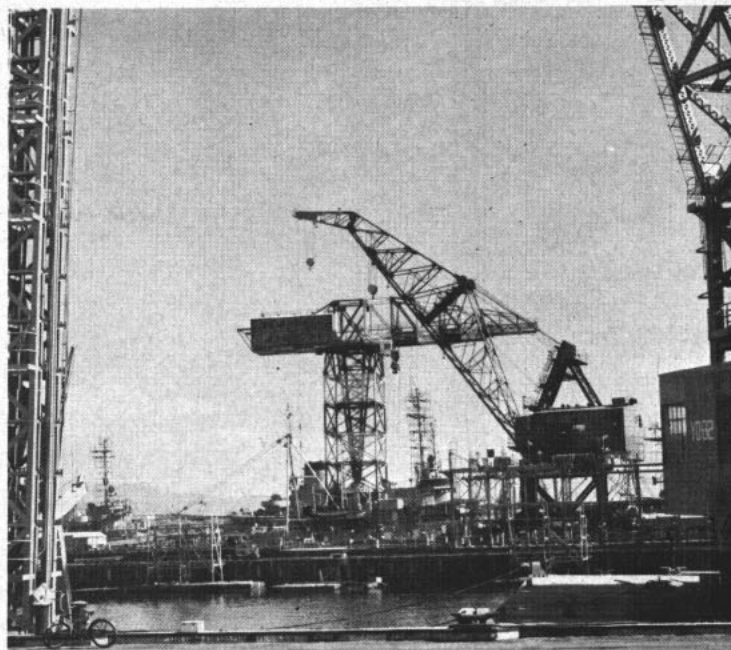
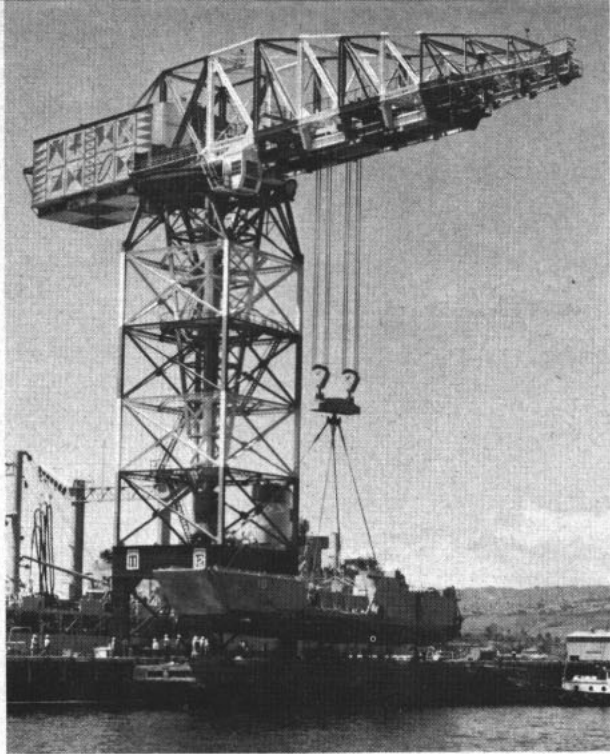
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MUSCLE MEN—Hammerhead lifts LCU. Rt: Cranes tower over repair basin. Below: Crane picks up 72-ton transformer.

Hawaiian Weight Lifters

OUT PEARL HARBOR WAY there is a group of champion weightlifters, but although they are tops in their field you'll never read about them on the sports pages.

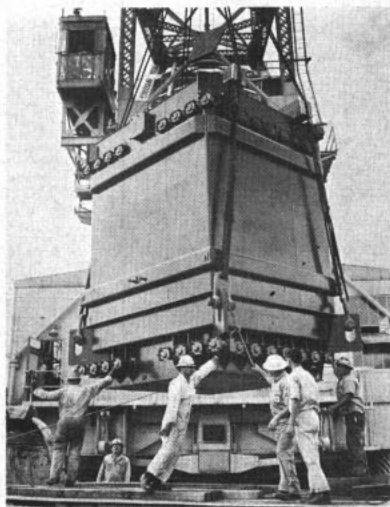
They are the 127 assorted members of the hard-working crane family situated throughout the Naval Shipyard. The cranes range from half-ton capacity shop hoist cranes to the massive 200-ton capacity hammerhead crane, with a Hawaiian tapa cloth design, that is a landmark on Pearl Harbor's skyline.

Included in the shore-based group are 21 portal cranes and 55 bridge

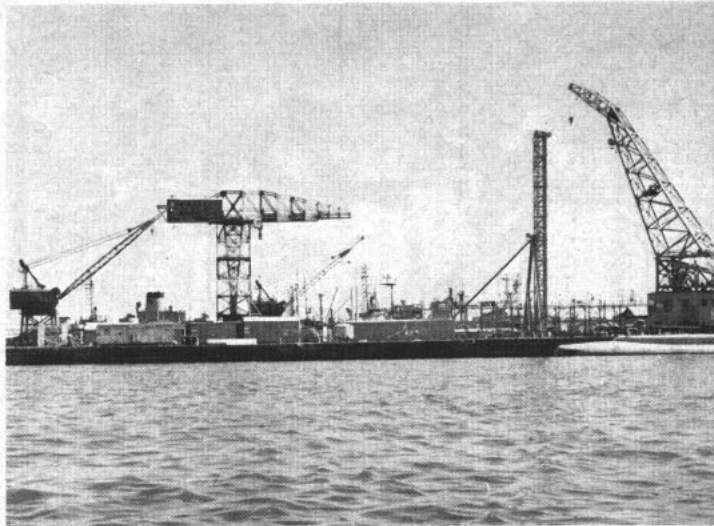
cranes that travel in and out of large shops on overhead tracks. Under the skillful hands of their operators the portal cranes can precisely align hundreds of three-and-a-half-ton keel blocks for a ship overhaul, or wheel up to a dock's edge and lower a new boiler into a ship.

The skill required to swing one of these giants in the right direction involves a long apprenticeship, but the crane pilots at Pearl are well trained and experienced, standing ready for anything the Navy might need to have picked up or set down.

— Jim Wood, JO2, USN



WATER WORKER—Floating crane loads ship with Army tanks. Rt: Pearl Harbor's cranes stand out against skyline.



SECOND

Charley Wise, HMCA, USN



"Hey, Gramps, guess who got sick on the ferry today?"

FIRST

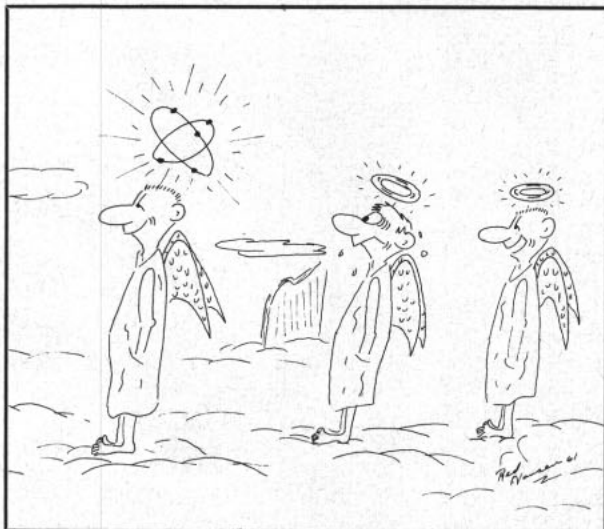
ENS R. C. Harvey, USN



"... In closing, men, I'd like to say that if any of you have any problems ..."

THIRD

P. A. Hansen, EN2, USN



"Seems as though he used to be an ET or something in the Navy."

FIFTH

LTJG D. E. Lang, USNR



"I think Sam was out here last cruise."

The Winners

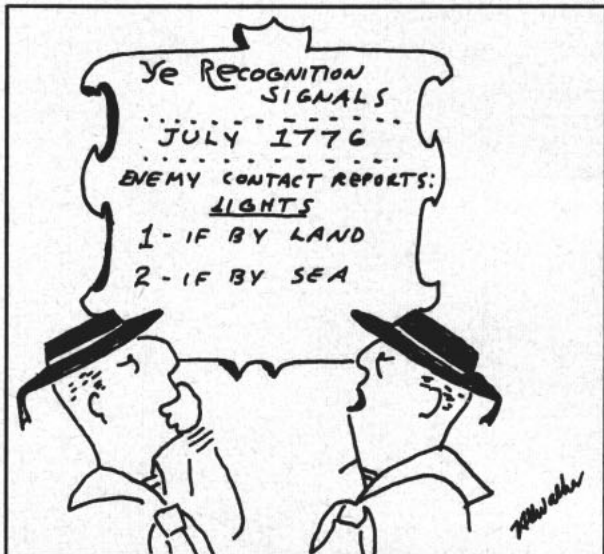
THE NAVYMAN'S perennial ability to laugh at himself has again been demonstrated. Entry after entry in the 1961 All-Navy Cartoon Contest brings this point home, as the accompanying cartoons show.

From more than 350 entries, 10 winners had to be selected—and, as in other years, the judges found themselves with some tough decisions. The humor of the subject matter and the skill in drawing have been, if anything, of an even higher caliber than in previous years.

After the final ballot had been tallied, the winner was found to be ENS Robert C. Harvey, Supply Corps School, Athens, Ga. Humorist Harvey's entry featured a young ensign as a would-be father counselor.

FOURTH

ENS H. G. Walker, USN



"I tell you mate, this communication rate is getting more complicated every day!"

FOURTH HONORABLE MENTION

H. P. Wood, Jr., 'MA2, USNR



"... 201, I shall never clean paint brushes in the coffee pot again. 202, I shall never clean paint brushes in the coffee pot again. 203, I shall never..."

FIRST HONORABLE MENTION

ENS T. K. Dean, USN



"Oh, I wouldn't say that!"

The traditional dread all blue-water sailors have of getting seasick on a ferry was put into cartoon form by Charley (n) Wise, HMCA, of *uss Observer* (MSO 461). It brought him the second place award.

The third place cartoon was a clever adaptation of the ET rating badge device. Peter A. Hansen, EN2, Naval Torpedo Station, Keyport, Wash., was the artist.

Fourth place went to ENS Horace G. Walker, *uss Inflict* (MSO 456). His was one of the few entries with a historical slant. The fifth place cartoon should draw extra yuks from Seventh Fleet-men. LTJG David E. Lang, PatRon 40, NAS Sangley Point, was the cartoonist.

The above winners will receive All-Navy Championship Trophies. Next in line are the 1st to 5th honorable mention awards.

First honorable mention went to

ENS Thomas K. Dean, *uss Hancock* (CVA 19). He was followed by the second honorable mention, by John L. Draves, QM3, *uss Lookout* (AGR 2). LTJG Paul B. Kincade, ComPhibPac Staff, won the third honorable mention. Fourth honorable mention went to Howard P. Wood, Jr., CMA2, of MCB-7, and fifth honorable mention went to Neil H. Hansen, AC1, Naval Administrative Unit, PRNC.

All honorable mention winners will receive a certificate to that effect.

Of last year's finalists, only two made their way to the winners' circle this year. Quartermaster Draves and Construction Mechanic Wood were the repeaters.

Several of the other entries in this Sixth All-Navy Cartoon Contest — though not winners — will appear in future issues of ALL HANDS.

THIRD HONORABLE MENTION

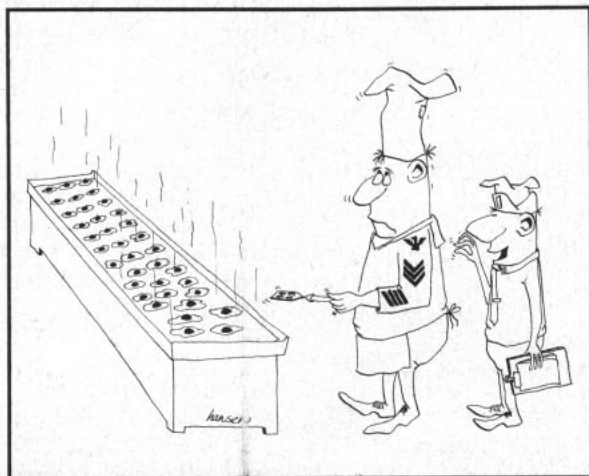
LTJG P. B. Kincade, USN



"Don't tell me... I'll get it... one and a half stripes is a lieutenant junior grade."

FIFTH HONORABLE MENTION

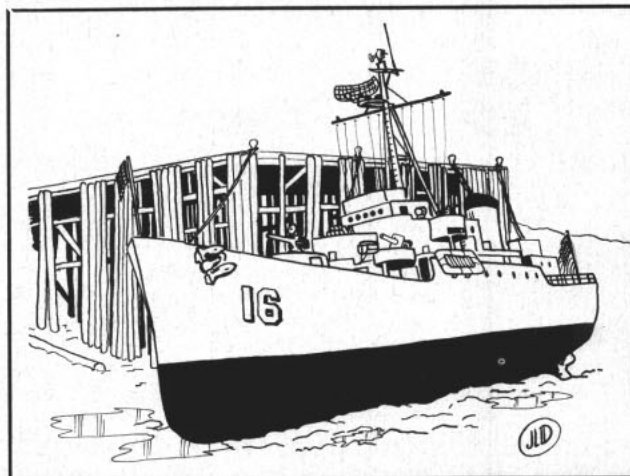
N. H. Hansen, AC1, USN



"How about a little pinch of parsley on each one..."

SECOND HONORABLE MENTION

J. L. Draves, QM3, USN



"Quartermaster! What's the state of tide?"

★ ★ ★ ★ TODAY'S NAVY ★ ★ ★ ★



OFF AND UP — Artist's conception shows Polaris missile being fired from the nuclear-powered guided missile cruiser, USS Long Beach, CG(N) 9.

100,000 Carrier Landings

The number of arrested landings by fixed-wing aircraft aboard USS Franklin D. Roosevelt (CVA 42) went over the 100,000 mark while the Sixth Fleet carrier was on its 13th Mediterranean cruise.

FDR's statistical-minded airdales were quick to announce that it was the first time in history a CVA had been the base for a six-figured number of landings, and warned USS Essex (CVS 9) that the all-carrier high which she now claims will soon be in peril. (Essex passed the 100,000 mark earlier this year.)

CDR A. R. Hawkins of Carrier Air Group 1 did the honors for FDR's 100,000th in his A4D Skyhawk.

She holds the 1960 ADM Flatley

Aircraft Safety Award—presented annually to the CVA which achieves the highest safety record in air operations. The carrier's homeport is Mayport, Florida.

Polaris Fire Control System

A new fire control system for Polaris-firing submarines is in the mill for the Navy.

The new MK 84 system will be an improved version of the MK 80, and will provide the Navy's Fleet ballistic missile weapon system with improved operational capability.

It makes extensive use of new digital computing techniques, and will do more things automatically than the MK 80 in addition to being more versatile, flexible and easy to operate and maintain.

Record for Submarine Escape

Deep in the warm waters off Key West last March, two Navymen slowly emerged from USS Balao (SS 285), treaded upward, and, upon reaching the surface, had not only tacked 16 feet onto the depth record for submarine escapes, but had also successfully tested a new submarine escape device.

The two men—LT Harris Steinke of the SubBase in Groton, Conn., and CDR Walter Massone of Groton's Medical Research Laboratory—made their escape from Balao at a depth of 318 feet.

Their new escape aid for submariners, which was designed by LT Steinke, is best described as an inflated life jacket with rubberized fabric hood and transparent plastic face section. Relief valves are arranged on the jacket to permit the hood to be filled with expanding air for its wearer to breathe.

After their ascent, which took 55 seconds, the men were recovered by USS Skylark (ASR 20), examined, and found to be in excellent health.

The old record of 302 feet was set by CDR George Bond and Chief Engineman Cyril Tuckfield in the same general area in October 1959.

Crack Diesel-Electric Sub

It seems to be a common practice for Navy ships to pile up a stack of records, firsts, and just plain statistics over a period of many years. USS Grayback (SSG 574), however, appears to have thrown a statistical curve.

Commissioned only three years ago, Grayback has already chalked up considerable data for her ship's history.

For one thing, Grayback steamed an average of 2273 miles every month between March 1958, when she was commissioned and December 1960, when she was placed in drydock at Pearl Harbor for modernization.

During her 75,000 miles underwater, the submarine was submerged for 3840 hours. This means Grayback spent more than five of her 33 active service months underwater.

YESTERDAY'S NAVY



On 4-8 May 1942 the Battle of the Coral Sea became the first naval engagement fought without opposing ships making contact. Victory was achieved through use of carrier-based planes. On 8 May 1911 Naval Aviation was born with Navy order of first aircraft fitted for both land and water takeoff. Cost was \$5500. On 9 May 1926 CDR R. E. Byrd made the first flight over the North Pole. On 27 May 1919 an NC-4 flying boat, commanded by LCDR Read, flew from Trepassey Bay, Newfoundland, to Lisbon, Portugal via the Azores, thus completing first transatlantic flight.

Grayback also claims her reenlistment rate is one of the highest in SUBPAC. She has 49 per cent first-cruise reenlistments, while 100 per cent of her veterans have taken the oath more than twice for an over-all average of 66 per cent.

The first submarine to be designed and constructed as a missile launcher, *Grayback* has fired 18 *Regulus I* missiles and has launched the only *Regulus II* ever tested on a sub. Her over-all launching successes have been recorded as 94 per cent.

Grayback was scheduled to return to SUBPAC duty in April after a five-month face lifting during which she was fitted with new batteries, a Ships Inertial Navigation System (SINS), and a new sonar device.

She is also equipped with an advanced modification of her missile launching system. This will reduce the on-surface time required for her to launch *Regulus* missiles.

The overhaul and modernization are behind *Grayback's* latest claim to fame. Crew members now boast they serve aboard one of the most modern diesel-electric subs in the Fleet.

— Bill Neal, JO2, USN.

Air Conditioned Suit

An air conditioned suit has been developed to keep Navy men comfortable in climates which range from the bitter cold of the Arctic to the extreme heat of the tropics.

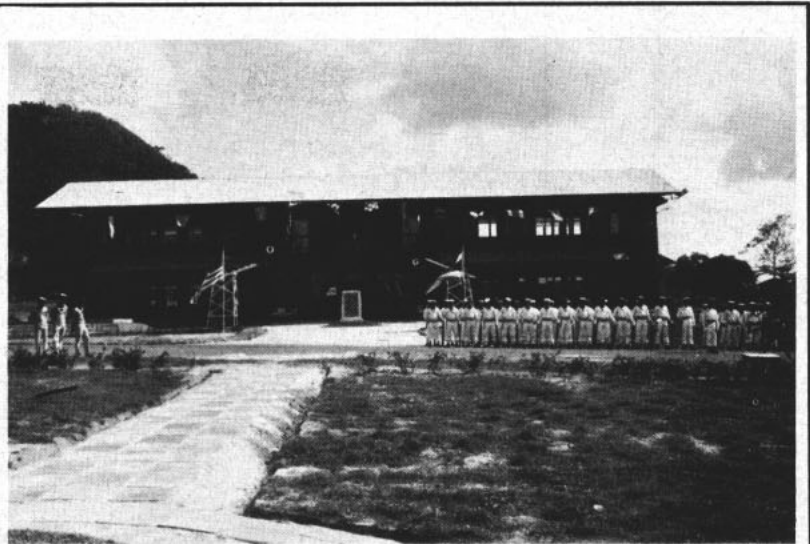
The 13-pound, airtight suit is made of an insulated aluminum-coated fabric. Heating or cooling of the suit is done automatically with a 45-pound, battery-operated thermoelectric unit which is mounted on the wearer's back.

Tests have shown that a temperature of about 80 degrees Fahrenheit is maintained inside the suit when outside temperatures vary from 40 degrees below zero to 135 degrees above.

Air for breathing is supplied through a face mask which is connected to the side of the suit helmet. Incoming air is heated or cooled by a small heat exchanger.

The system's only moving parts are two small fans which circulate air around the suit's wearer.

Design and fabrication of the garment, installation of the air conditioning system, and testing of the finished suit were handled by the Clothing and Textile Division of the Naval Supply Facility, Bayonne, N.J.



NEW LOOK—Thai navymen fall in by headquarters of new training center.

MAP Aids Fleet Headquarters of Royal Thai Navy

Beneath the swaying palms of Sattahip Naval Base in Thailand, the probing hand of progress has renovated what was 30 years ago a small, primitive naval station hacked out of the jungle on the Siamese coast.

The new look of Sattahip is the doing of U. S. military assistance planners who figured the Thai stronghold could use sprucing up.

The Thai-American MAP organization supplied Sattahip with a complete recruit training center, water supply and distribution equipment, generators and a degaussing range.

As a result, the Southeast Asia base, which is earmarked to become Fleet headquarters of the Royal Thai Navy, can now provide SEATO ships with repair, refueling, supply and training facilities.

Sattahip's report looks like this:

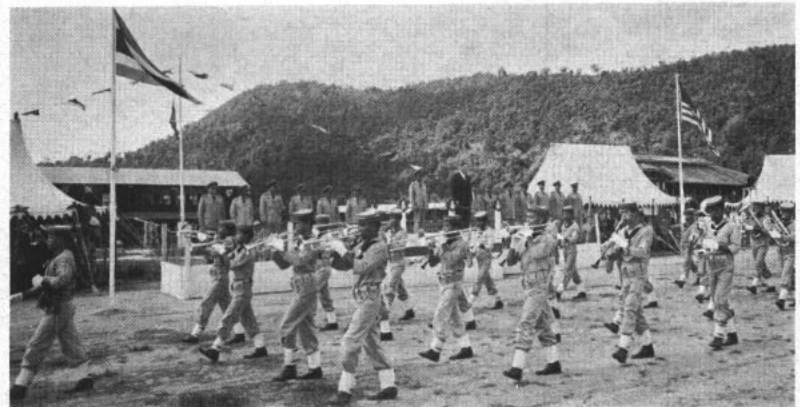
- A modern training center which can house more than 1200 Thai recruits and instructors; has adequate facilities for 140 families.

- A new degaussing range, making it possible for Thai navymen to demagnetize their own ships rather than to send them to Singapore each year, as has been customary.

- Water, which it seemed there was never enough of, is no longer in a state of shortage.

- Sattahip old-timers recall doing homework by lantern light during recruit training. More recent graduates tell of the necessity to finish their work by 2200—the time for lights out throughout the base—in order to conserve electric power.

Now, however, two new generators have been turned over to the base, which technicians say will provide sufficient electric power.



ROYAL THAI navy band leads parade during ceremonies at new base.



MISSILE MASTER — Guided Missile cruiser *uss Providence* (CLG 6) cruises Pacific with the First Fleet.

How to Tell Time

Do you know the time of day? The chances are you don't even though you are looking at the face of your watch.

With the increasing need for accuracy in the fields of rocket tracking and radio navigation, the Navy has found that its present way of telling time was not precise enough to suit new requirements.

Now Naval Observatory scientists report that transmissions of time signals from the very low frequency radio station at Balboa, C. Z. are constant to one part in ten billion.

This signal is so accurate that a perfect watch set to match this constancy would lose less than one hundredth of a second in three years.

This is the way such accuracy is achieved: Time signals are transmitted continuously from radio station NBA in the Canal Zone. The frequency of the carrier wave is compared at Washington, D.C., with the Naval Observatory's atomic clock. If, upon comparison, observatory scientists find the frequency varies from the atomic time by more than one part in 10 billion, the observatory directs NBA to correct its transmission frequency.

Station NBA achieves stabilization by using very precise quartz-crystal oscillators, which are easily regulated and can run for years without stopping.

The Naval Observatory's atomic clock serves as the control. The clock frequency was determined in 1958 by the Observatory and the National Physical Laboratory at Teddington, England.

The basis of the atomic clock is the oscillation produced by the cesium atom. Its frequency is 9,192,631,770 cycles per second.

NBA broadcasts began in December 1959 and went on a 24-hour daily basis on 1 Jul 1960. The frequency used is 18 kilocycles per second. This can be compared with the 500 to 1600 kilocycles per second used in the commercial broadcast band.

As soon as industry makes additional, sufficiently precise, quartz-crystal oscillators available, they will be installed at the Navy's other very low frequency stations in the states

of Maryland, Washington, Hawaii and Maine.

When installation is complete, the Navy will have a transmission system which will cover the world.

These stations can provide constant frequency without interfering with normal communications.

Five More Polaris Subs

The building program for Fleet Ballistic Missile submarines SSB(N)s has been stepped up, with contracts let for the construction of five more of the *Polaris*-firing ships.

Of the new subs, four will be built at two private shipbuilding yards while the fifth will be built at the Mare Island Naval Shipyard. Each will be of the improved *Lafayette*, SSB(N) 616 class, which is larger, longer and heavier than the *uss George Washington*, SSB(N) 598 class.

The potential SSB(N) count now stands at 19. Five SSB(N)s are now serving with the Fleet, each armed with 16 *Polaris* missiles. Nine others are in various stages of construction. And the five for which contracts have been awarded brings the figure to 19.

Good Talkers

"Unaccustomed as I am to public speaking . . .," is a phrase rarely used by three members of the aviation training schools at NATTU Jacksonville, Fla. They are Ralph S. Frantz, GYSGT, Daniel B. Mitchell, AEC, and Robert E. Hayes, AM1, who came in first, second and third in the Schoolmaster competition.

The competition takes place each year at NATTU Jacksonville to improve morale and add new ideas to teaching methods in Navy Service Schools.

Competition is divided into three parts. The first consists of a regular one-hour presentation to a class. The second and third parts both include a 15-minute presentation on a subject chosen by the contestant, plus a five-minute impromptu presentation on a subject which the contestant draws from a hat, and for which he has 35 minutes to prepare.

Competitors are graded on appearance, statement of objectives, delivery, use of training aids, questioning technique, clarification, summarization and effectiveness. Penalties are given for exceeding or falling short of the allotted time for presentation of the lecture.

ON THE MOVE—The landing ship, dock, *uss Donner* (LSD 20) sports modern helicopter deck and presents neat appearance while steaming the Atlantic.



Sailing at 45 Knots

The keel for the Navy's first operational hydrofoil patrol craft has been laid in Tacoma, Wash. The 115-foot, 110-ton aluminum ship, to be completed some time in 1962, is being built by an aircraft manufacturer.

Top speed of the craft under favorable conditions is expected to be in excess of 45 knots. Equally important, however, is its speed in rough seas. In water rough enough to limit existing patrol craft to 15 knots or less, the PC(H) will be able to operate at much higher speeds. (A detailed discussion concerning the Navy's hydrofoil program may be found in the October 1960 ALL HANDS.)

More Sparrows, Mark III

There will be more sparrows soon. The Navy has awarded a multi-million dollar contract for production of the Sparrow III air-to-air supersonic missile.

The missile is now operational with the Sixth and Seventh Fleets. It is launched from carrier-based F3H-2 *Demon* supersonic jet interceptors.

It is also the prime armament of the Navy's new supersonic F4H-1 *Phantom II*, which is an all-weather jet fighter soon to become operational.

More DLGs and Asrocs PacFlt

The addition of *uss King* (DLG 10) and *uss Mahan* (DLG 11) to the Pacific Fleet early this year not only doubled the number of PACFLT guided missile frigates — the other two are *uss Coontz* (DLG 9) and *uss Preble* (DLG 15) — but also gave her antisubmarine force an additional shot in the arm.

King and *Mahan* are now both equipped with the new *Asroc* (antisubmarine rocket) system.

Mahan made her presence felt in the Pacific less than two weeks after reporting when she successfully fired her *Asroc*. It was the first time the system had been tested in Pacific waters.

The weapon, which uses a rocket booster to increase its range, can act as either a torpedo or depth charge.

When it is used as a torpedo, the payload is released high in the air over the target area. A small parachute slows its plunge into the water where its motor is energized by a



CHOW TIME—A seaman of the heavy cruiser *USS Rochester* (CA 124) takes time out from his work long enough to feed raw fish to a visiting seal.

seawater battery. The torpedo then travels under water, using an acoustic device to home in on the target.

When used as a depth charge, the *Asroc* payload sinks to a predetermined depth and detonates with a large effective kill area.

The system's launcher contains eight cells which enable the ship to fire missiles in rapid succession. Each bank of two cells elevates independently of the others.

The *Asroc* will eventually be installed in cruisers, frigates and guided missile frigates, including *Coontz* and *Preble*.

Mahan, commissioned on 25 Aug 1960, was built at the San Francisco Naval Shipyard. She is named for RADM Alfred T. Mahan.

King, named for FADM Ernest J. King, was constructed at Puget Sound Naval Shipyard, Bremerton, Wash. She was placed in commission on 17 Nov 1960.

Heck of a Fine HelAsRon

HELASRON Eight — or Helicopter Antisubmarine Squadron Eight (HS 8) — is an outfit proud of its record. Commissioned 1 Jun 1956, it recently increased its safety record to more than 10,000 accident-free flying hours, marking over two years of accident-free flying.

The squadron is a sea-going group and a veteran of three Far East deployments. It has served aboard *uss Princeton* (CVS 37), *Hornet* (CVS 12) and *Bennington* (CVS 20).

As with other HELASRONS, Squadron Eight has the mission of search-

ing-for, tracking, and destroying enemy submarines. Its current aircraft is the HSS-1, a copter equipped with dipping sonar, which is lowered from the hovering copter into the water. The HSS-1 is also able to carry and launch torpedoes, depth charges and mines. HELASRON Eight aircraft are often called upon to transfer personnel between ships of the task group, and to deliver mail and Fleet freight.

MAIL SERVICE—Helicopter picks up outgoing mail from the guided missile cruiser *USS Boston* (CAG 1).





HALE COLOMBIA — *Antioquia*, formerly known as USS Hale (DD 642), is transferred to government of Colombia in Boston Naval Shipyard ceremony.

Operation Solidarity

One of the fine examples of a hemisphere pulling together to provide for the mutual defense has been given by Operation Solidarity—a joint exercise involving United States, Panamanian, Colombian and Peruvian forces who joined to repel a theoretical attack on the Panama Canal.

The four-nation Army-Navy-Air Force exercises were held in the Rio Hato area of the Canal Zone. On the opening day of the exercise, 1250 paratroops of the 82nd Airborne took off in 22 C-130 transport planes, to jump into the Rio Hato area to repel the aggressor.

U. S. and Colombian ships took up positions off Rio Hato beach to provide gunfire support to ground forces in the Rio Hato area. Minesweepers of both countries took part in maneuvers in the Bay of Panama. Both countries provided surface, sea and air rescue coverage for the U. S. and Colombian parachutists.

For the U. S. paratroops, it was not only to be a battle exercise but an exercise in rapid adaptation to a radically different climate. They had conducted a similar exercise last year when they left their base in North

Carolina to make jumps in upstate New York, where the temperature was 30 degrees below zero.

Just before the C-130s bearing the U. S. airborne troops arrived over the drop zone, three C-47 transports dropped Peruvian paratroops into the zone to begin the airborne assault.

Nine C-119s from Albrook Field, C. Z., carrying elements of the First Battle Group, 503d Infantry Regiment, were next over the drop zone. Heavy equipment was dropped for use in repelling the aggressor forces.

For half an hour before the airborne troops arrived, Peruvian Air Force planes flew air strikes against the theoretical enemy to soften him up.

All in all things went pretty well. Because of high winds over Rio Hato at the time of the jumps, one group of planes had to make a second pass over the drop zone before its load of 100 U. S. paratroopers could jump.

Seasoned observers were pleased with the smoothness of the operation. The exercise was an indication of the ability of several countries to combine effectively against invaders.

Abraham Lincoln Commissioned

All five Fleet Ballistic Missile submarines of the *George Washington* class are now in commission. This came to pass with the commissioning of *uss Abraham Lincoln*, SSB(N) 602, at the Portsmouth Naval Shipyard, Portsmouth, N. H.

Like her four sister ships, *Abraham Lincoln* displaces 5400 tons, is 380 feet long and carries 16 *Polaris* ballistic missiles.

Following the *George Washington* class will be a second five-ship class of SSBNs, 1500 tons heavier and 30 feet longer than the "GWs." The lead ship will be *uss Ethan Allen*, SSB(N) 608. It is scheduled for commissioning in August.

Commissioned 11 Mar 1961, *Abraham Lincoln* was launched 14 May 1960. Her sponsor was Miss Mary Beckwith, a great-granddaughter of the Civil War president. It is the first combatant ship to bear the name. The name *President Lincoln* was carried by a World War I transport.

Of the 126 submarines built at the Portsmouth yards over the years, *Abraham Lincoln* is the largest—and also the yard's first SSBN. It is the first SSBN to be built by an East Coast naval shipyard. *uss Theodore Roosevelt* SSB(N) 600, commissioned just one month before *Abraham Lincoln*, was built at the Mare Island Naval Shipyard. The other three GWs were built by East Coast commercial shipyards.

Proteus at Holy Loch

A small cove on Scotland's Firth of Clyde is now a sort of home port for a growing number of Navymen. Holy Loch (the cove) and Dunoon, the nearby town, are familiar sights to the crew of *uss Proteus* (AS 19), which dropped her anchor there earlier this year for a visit of indeterminate length.

Since her arrival, the crew of the FBM-submarine tender have made many friends among the local residents. The Provost of Dunoon told them, "We do not look upon you as visitors. We would like you to accept us as you find us, and take part in our activities."

Holy Loch is on Scotland's west coast about 30 miles west of Glasgow.

Manned by a crew of nearly 900, the specially-fitted tender provides services to Fleet Ballistic Missile submarines between their patrol periods.

Proteus also serves as flagship for Commander Submarine Squadron 14.

Shortly after the ship's arrival part of the crew were guests at a reception hosted by Dunoon, and 300 bluejackets attended a dance sponsored by the town council.

uss *Patrick Henry*, SSB(N) 599, stood up the river and into Holy Loch to be the first sub moored alongside the tender. The Gold Crew, which had been flown to Scotland, welcomed the Blue Crew in from their 66-day, 22-hour cruise and prepared to take over in the first on-station relief of SSBN crews.

(*Patrick Henry* went on to receive progressive maintenance before departing on another cruise, while the Blue Crew headed stateside for leave and further training.)

During *Proteus*' stay at Holy Loch she will be replenished monthly by either uss *Alcor* (AK 259) or uss *Betelgeuse* (AK 260). The two cargo ships have been specially adapted for service in the FBM-submarine support system. They will operate from Norfolk, Va., and Charleston, S.C., and their cargoes will include items necessary for the support of the system.

Hydrodynamic Research

The Navy's David Taylor Model Basin has taken over hydrodynamic research facilities at Langley Research Center, Langley Field, Va.

Utilizing this added space, formerly held by the National Aeronautics and Space Administration, Model Basin experimenters will conduct research and development programs in the field of high-speed craft and weapons, including hydrofoils, air cushion vehicles, hydroskis, planing catamarans, steep-takeoff-and-landing seaplanes, torpedoes and underwater rockets.

Additional programs will also be carried on for both the Bureau of Ships and Bureau of Naval Weapons, and some services will also be provided to NASA and to private aircraft companies.

An initial staff of 15 employees will commence the test work, under the auspices of the High-Speed Phenomena Division of David Taylor's Hydromechanics Laboratory. Among the facilities which will be available to them are a large indoor salt-water tank equipped with a wavemaker and a 42- by 23-foot carriage capable of attaining a speed of 50 knots. They will also have access to NASA's



Submarine Skipper's Gig Is 'Black Balloon'

The submarine *Ronquil* boasts the wackiest boat in the Navy—not the ship, but the skipper's gig.

It's the most, to say the least.

The gig could best be described as a custom raft. "Extras" on the inflatable rubber landing craft include a canvas canopy, 10-hp outboard motor, cut-down boat hook, and flagstaff. Three-inch-high lettering on either side identifies the gig as being from uss *Ronquil* (SS 396).

Torpedomen Stanley Cooper, Sid

Sutherland and ENS William Zierden discovered the need for a gig a few weeks ago. Today the submarine skipper, LCDR J. H. Bothwell, USN, enjoys what is probably the Navy's most unusual transportation for any commanding officer.

The "black balloon," rather flexible, but seaworthy, lumbers daily across San Diego Harbor for its Number One passenger. *Ronquil's* crew is very proud of it, and, who knows, it may be the future "new look" for all submarine gigs.

outdoor fresh-water, high-speed hydrodynamic tank, which contains a carriage capable of reaching a speed of 150 knots.

Exposure Suits

The pilots of Fighter Squadron 151 have given themselves a realistic workout in the poopy-suits (officially, Mark 4 exposure suits). It was more than "just for drill." Emphasis was placed on testing the watertightness of the suit.

The testing was done in a deep pool at NAS Atsugi, Japan. Water temperature was 38 degrees. Each pilot was buckled into a parachute harness, so while he tested his suit for leaks he also refreshed himself on emergency procedures for shedding the harness and climbing into a one-man raft.

Made of rubber, the Mark 4 suit covers the greater part of the body. It leaves only the hands and head uncovered and is designed to im-

prove a pilot's chance of survival should he be forced to eject into very cold water.

At 28 degrees F. at which sea water begins to freeze, a man has about 10 minutes before he will die of exposure. With his exposure suit, liner, hood, and gloves, however, his safe exposure time can be increased 12 times or even more.

Navy Gets More Hawkeyes

The U.S. early warning force was given a shot in its air arm recently when the Navy placed its second order for carrier-based W2F-1 *Hawkeye* early warning aircraft.

The Navy ordered *Hawkeyes* a year ago, then called for an additional number in March 1961.

Designed to protect task forces, the W2F-1 system can detect and evaluate the full nature of an air attack in advance of the minimum time needed to warn friendly interceptors. It has a five-man crew.



ON LOAN — USS *Pecatonica* (AOG 57) sails for Taiwan where she will become a member of the Chinese Navy.

Pecatonica to Taiwan

The gasoline tanker *uss Pecatonica* (AOG-57) has been placed on loan to the Republic of China under the provisions of the 1954 Mutual Security Act.

Pecatonica sailed from her homeport of Norfolk on 17 February for Taiwan, where she was decommissioned and turned over to the Nationalist Chinese.

The ship's crew conducted a familiarization period during which the Chinese officers and men were indoctrinated in handling the tanker.

Pecatonica was commissioned in New Orleans in November 1945. She sailed from New Orleans to Norfolk, where she was decommissioned, and remained in reserve until April 1948.

After recommissioning, she made logistic voyages along the eastern seaboard of the United States and occasionally to naval stations in the Caribbean. During the past five years she has been used chiefly for logistic support of Mutual Defense Assistance Pact convoys.

In September 1960 she was ordered to carry 500,000 gallons of drinking water to Key West, Fla., stricken by Hurricane Donna.

Pecatonica received the Battle Efficiency Plaque for over-all excellence of performance for fiscal years 1959 and 1960.

Fire Prevention Champs

Fire prevention has been a major program in the Navy and Marine Corps ever since there has been a naval service. Fire is a constant threat to property and lives—particularly aboard ship.

To help encourage fire prevention aboard naval activities ashore, the Navy has, since 1949, entered reports of individual station programs throughout the world in the annual Fire Prevention Contest sponsored by the National Fire Protection Association (NFPA).

Fiscal year 1960 was no exception. The grand award, which went to the station with the most effective program, has been presented to the Marine Corps Recruit Depot, Parris Island, S.C.

The following bases, which competed according to their size, have been issued certificates of merit by the NFPA for their work in preventing fires during the fiscal year 1960:

- **SMALL** (under 1500 personnel)
Naval Supply Center, Cheatham Annex, Williamsburg, Va.
Naval Ammunition Depot, Hawthorne, Nev.
Fleet Activities, Sasebo, Japan

Honorable mention:

- David Taylor Model Basin, Washington, D.C.
- Naval Station, San Juan, Puerto Rico
- Naval Station, Sangley Point, Luzon, Philippines
- Naval Station, Roosevelt Roads, Puerto Rico

- **MEDIUM** (1500 to 3500 personnel)
Marine Corps Recruit Depot, Parris Island, S.C.
Naval Supply Depot, Seattle, Washington

Honorable Mention:

- Naval Supply Center, Bayone, N.J.
- Naval Propellant Plant, Indian Head, Md.
- Naval Base, Guantanamo Bay, Cuba
- Naval Weapons Plant, Yorktown, Va.
- Naval Supply Depot, Mechanicsburg, Pa.
- Naval Training Center, Bainbridge, Md.
- Naval Ordnance Laboratory, Silver Spring, Md.
- Naval Medical Center, Bethesda, Md.

- **LARGE** (over 3500 personnel)
Naval Station, Norfolk, Va.
Marine Corps Base, Camp Pendleton, Calif.
Fleet Activities, Yokosuka, Japan

Honorable Mention:

- Naval Base, Subic Bay, Philippines
- Severn River Naval Command, Annapolis, Md.
- Naval Air Station, North Island, San Diego, Calif.
- 14th Naval District Consolidated Fire Department, Hawaii
- Naval Air Station, Patuxent, Md.
- Naval Consolidated Area, PRNC, Washington, D.C.
- Boston Naval Shipyard, Boston, Mass.

Over 100 Navy and Marine Corps shore activities throughout the world competed in fiscal year 1960's fire prevention program.

Hawaiian Area Navy Wrestling

Forty-seven Navy grapplers representing seven different commands grunted and groaned their way through a long afternoon on the mats at Naval Air Station, Barbers Point, recently. When it was all over, the Destroyer Flotilla Five team had rung up a total of 52 points, and captured the Hawaiian Area Navy wrestling championship for the second successive year.

Runner-up SUBPAC garnered 41 points, while the third-place *uss Midway* (CVA 41) crew managed 32. Other entrants, and their point totals, were: NAS Barbers Point, 22; Inactive Service Craft Facilities, 17; Pearl Harbor Naval Station, 12; Naval Station, Midway, 5.

ISCF's Robert Crisp and DesFlot Five's Richard Flood were the only successful defending champions. Crisp retained the 136-pound crown he won a year ago, while Flood repeated in the heavyweight division.

CAPT S. M. Archer, USN, Chief of Staff for the Com 14, and a veteran wrestling mentor and National AAU Vice-President, acted as meet coordinator. He classes Crisp, and a DESFLOT Five twosome—147-pound champ Robert Wurm and 160-pound title winner Jim Gass—as potential contenders for national wrestling honors.

Besides Crisp, Flood, Wurm and Gass, other weight-class winners were:

- 191 pounds—Kenneth Noteboom, *uss Midway*.
- 174 pounds—Steve Shunway, NAVSTA Pearl Harbor.
- 125 pounds—Hueland Marshall, SUBPAC.
- 114 pounds—John Snemis, NAS Barbers Point.

How to Be a Champion, the Hard (and Only) Way

You'll nearly always find, in the makeup of a Navy sports champion, a willingness to sacrifice his leisure time to training. Such a regimen can't be much fun, as a rule. Often the aspirant to championship honors pushes himself through the long hours and days and weeks of practice alone. Some can't stand the gaff after a while, and drop out. Most persevere, however—out there, somewhere, they can see a goal they have set for themselves, and sense the satisfaction which will be theirs if they can attain it.

At any rate, our hat's currently off to a Little Creek, Va., LTJG, and a Washington, D.C., Wave seaman. The sports they'll eventually compete in are quite different—but their conditioning programs are similar.

LTJG Lew Stieglitz serves as Athletic Officer for the Atlantic Fleet Amphibious Force at Little Creek. And, in an outfit which places considerable emphasis on physical fitness and endurance, the jaygee would appear to be emi-

nently qualified for his post.

A former University of Connecticut track star, and currently one of the best 10,000-meter men in the nation, LTJG Stieglitz hasn't allowed bad luck to get him down. A year ago, he was rated a virtual cinch to represent the U. S. in his specialty at the summer Olympic Games in Rome. After more than eight months of intensive workouts, however, he suffered a pulled leg muscle just before the final elimination tryouts, and lost out on an opportunity to make the trip.

Thwarted in 1960, but undaunted, the six-two, 160-pound Navyman has set his sights on 1964. Each and every day he polishes off a 10- to 15-mile stint of running in the sand at Virginia Beach, then, for good measure, winds up with a few dashes up and down the steep sand dunes.

At that rate, if he's not ready for the big try by the time the next Olympic Games roll around, he figures he never will be.

In the nation's capitol, mean-

while, NavSta Washington's Beverly Nieman follows an equally strenuous grind. The little redhead, for the past three consecutive years Women's titleholder in the annual 40-mile Padre Island, Texas, Walkathon, is out to make it four straight championships this summer—and she's obviously not disposed to rest on past laurels.

Jumping rope, 20- to 40-mile hikes, and frequent jaunts up and down the 583 steps of the Washington Monument are just some of the exhausting training maneuvers employed by this determined Texan in her bid to retain her title.

The Walkathon's present 40-mile course poses few problems for the 22-year-old Wave, who performs her Navy duties at the Quarters "K" Special Services Office. When she first competed in the event, in 1955, the distance was a whopping 115 miles.

"I had to drop out of that one after 72 miles," confesses Beverly. "I just wasn't in condition then." She's in condition now.

Dogged Determination Wins

Almost every line of endeavor has its champions—most of whom possess at least a few trophies, ribbons and plaques attesting their prowess. Moreover, even the "modest" ones are prone to brag a little about such tokens.

Just about the champ of them all, however, when it comes to championship hardware (one whole wall in his home is covered with shelves containing the more than 100 plaques and trophies and some 200 ribbons he's won) has never uttered a word about his achievements. He's Baron V Randolph, a remarkable two-and-a-half-year-old Weimaraner who in just two short years has captured more official titles in more categories than any other dog in the U.S., and, quite possibly, the world.

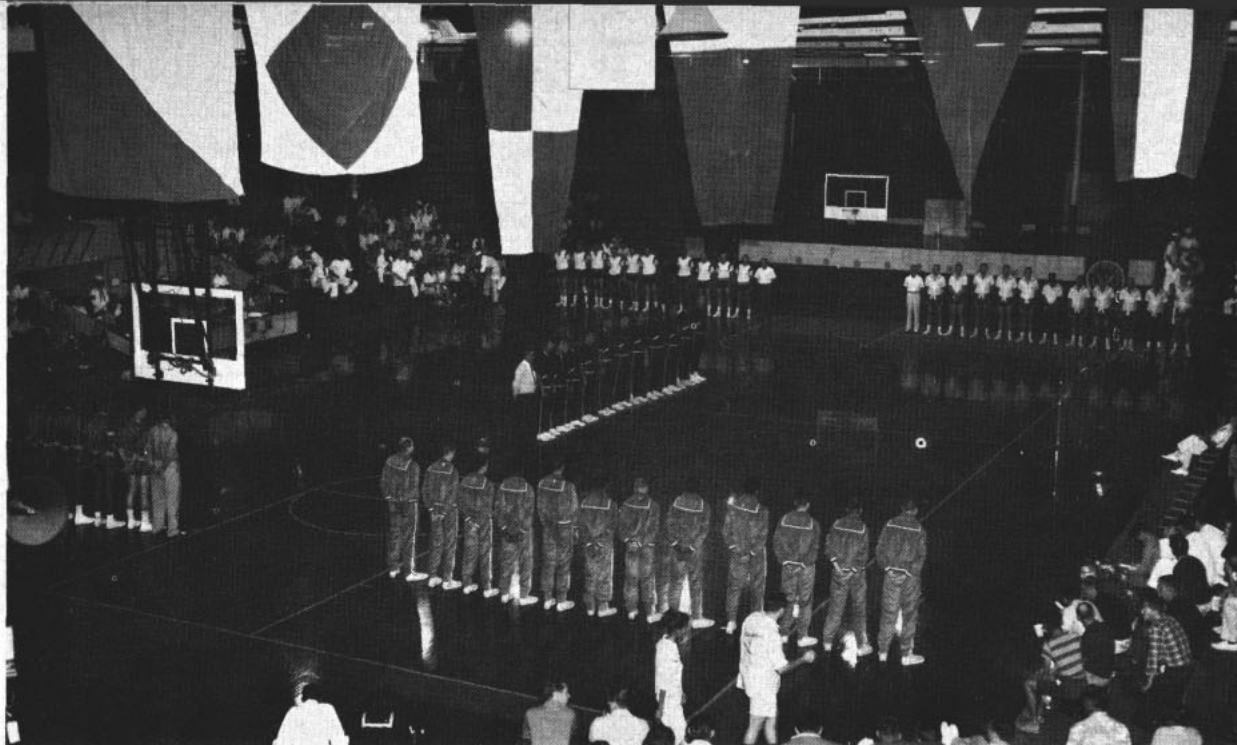
His owner-trainer, CDR E. C. Collins, USN, says Baron's tremendous career resulted from a desire to disprove a concept long prevalent among dog trainers—the dogmatic belief that no dog could possibly attain top proficiency in more than one category. The Weimaraner has a centuries-old tradition as an extremely beautiful and intelligent breed, and the Baron's performance has cer-

tainly enhanced that reputation. By sweeping practically all U.S. and Canadian honors available in five categories—breed, obedience, retrieving, tracking and field trials—the versatile Weimaraner can easily, and factually, lay claim to the title of "five-way champion."

The commander says, weather conditions and the availability of upland birds permitting, he will now concentrate his canny canine's energies on the further development of his performance as a shooting dog. Hope he does as well with a gun.



PUTTING ON THE DOG—Baron V. Randolph, a Weimaraner owned and trained by CDR E. C. Collins, USN, is five-way champ. (Photo by R. S. Foster.)



HOOPSTER HIGH POINT—Basketball champs stand ready to battle for All-Navy honors at Bloch Arena, Pearl Harbor.

All-Navy Basketball

SERV PAC'S Pacific Area basketball juggernaut, loaded to the gunwales with a bevy of ex-college hardcourt stars, rolled to its third All-Navy cage title in the past four years at Pearl Harbor March 6-9.

In becoming the first team in Navy history to put All-Navy basketball championships back to back, the tall, talent-laden Packers romped to the easiest of their three recent crowns. Three years ago, at Pearl Harbor, the Western Pacific Area standard-bearers were forced right down to the wire before edging DESLANT in a thrill-packed scorcher decided in the final five seconds of play. In the 1960 meet at Seattle they were given all they could handle by SERVLANT's Atlantic Fleet representatives.

This year, however, with the All-Navy classic once more returned to their own stomping grounds—Pearl Harbor's Bloch Arena—the LT Gene McGuire-coached Packers barely worked up a sweat until the second half of the championship game. Bulwarked by such former college greats as 6-3 Jack Stromberg, 6-5 Lee Mason, and 6-4 General Lee Davis, plus the likes of 6-6 Conrad Burke, 6-6 Jack Grout, and 6-4 Dick Frederickson, augmented from SUB-PAC's 14ND runners-up, the Packers battered PRNC's North Atlantic

Region champions, 109-50, clobbered the Pacific Coast Region's PHIBPAC Invaders, 80-60, and shaded the PhibPackers in a rematch, 76-73, en route to the All-Navy gonfalon.

As All-Navy titlists, the Packers won the right to contribute the bulk of the Navy squad which planed to Lowry AFB, Colo., for the Inter-Service play-offs against the cream of the Army, Air Force and Marine Corps, March 14 through 16. The Inter-Service finals were won by Army.

A little later—March 20-25—this same Navy crew hopped to Denver, Colo., to participate in the annual National AAU tournament against the country's leading industrial and amateur squads.

ALL-NAVY RESULTS

First round:	Third Round:
PhibPac—77	ServPac—80
ServLant—69	PhibPac—60
PRNC—77	ServLant—104
NABTC Pensacola—72	PRNC—76
	PhibPac—84
Second Round:	ServLant—78
ServPac—109	
PRNC—50	Fourth Round:
ServLant—78	ServPac—76
NABTC Pensacola—69	PhibPac—73

First Round — With defending champ SERVPAC taking it easy with a bye, a packed house at Bloch Arena saw both PHIBPAC and PRNC

rack up come-from-behind opening round victories.

PHIBPAC got heavy second-half scoring from ace Jim Henry and Henry Rapp to edge SERVLANT, after trailing the White Hats 42-37 at the intermission. Henry stuffed in a game-high 23 points, while Rapp added 19 big markers to the Invaders' attack.

The evening's second set-to saw NABTC Pensacola race to a quick 29-12 lead in the first ten minutes over a temporarily flustered PRNC crew. The NORLANT Region crew pulled a swift about-face, however, to out-score their tormentors by a 24-4 margin over the next 10 minutes, and post a 36-33 half-time edge.

Second-half action saw the two clubs swap the lead back and forth continuously, with PRNC's eagle-eyed accuracy at the foul line providing the difference at the finish. Chuck Jones and Bob Hoskins canned 22 and 18, respectively, for PRNC.

Second round — SERVPAC, making its first tourney appearance, lost little time demonstrating the facts of All-Navy life to PRNC's outmanned forces. The classy Packers rumbled to a 53-33 half-time bulge, and used superior manpower to completely wear down the outclassed

Washington area group in the second session. Burke topped a parade of Packer scorers with 20 counters, while Stromberg was right behind with 18. Jack Guy's 13 were best for the losers.

A loser's bracket go-round saw Pensacola become the first team eliminated from the meet. SERVLANT's White Hats, rebounding from their opening-round defeat, were paced by former Texas Southern standout Al Clark's 19 points as they pounded out a 43-31 halftime advantage, and led all the way.

Third round—An expected "battle of the unbeaten" featuring SERVPAC and PHIBPAC was a battle only at the start. Jack Stromberg's 15-foot jumper midway through the first canto put SERVPAC ahead to stay at 30-29, and the Packers utilized their time-tested success formula—superior height, great depth, and a continued top-flight scoring display by Stromberg and Burke—to grind out a convincing 80-60 win. Stromberg with 24, and Burke with another 20, again led the Packer point-getting brigade, while Jim Henry's 23 was high for the Invaders.

Later in the day, PRNC became the second All-Navy aspirant to fall by the wayside, succumbing before Atlantic Coast neighbor SERVLANT's determined onslaught, 104-76. Seemingly unable to miss from the floor, the White Hats racked up a huge 60-29 halftime lead, and waltzed in from there, with Bob Kelsey and Al Clark showing the way with 23 and 20 tallies, respectively.

The evening struggle for survival found SERVLANT wishing they had back some of the points they'd squandered earlier on PRNC. In the most bitterly fought and exciting game of the tourney thus far, the White Hats surrendered for a second time to PHIBPAC, and bowed out of further competition.

It was a 34-34 stand-off at the half, and the lead continued to see-saw through the entire second half. Jim Henry's driving lay-up with less than a minute remaining, boosted the West Coasters into a slender lead, and the Invaders took advantage of numerous fouls to slowly widen the gap in the closing seconds.

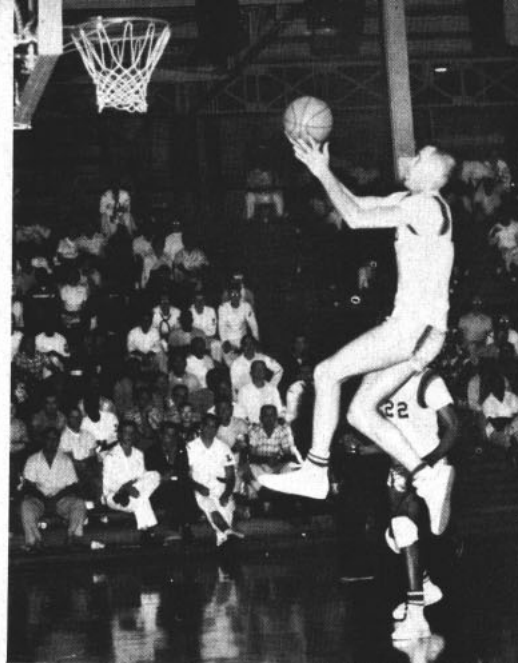
Henry once again was PHIBPAC's shining light with his third straight 23-point performance, and he got plenty of help from Com 17 aug-

mentee Charlie Maxwell with 21, and Henry Rapp, who bagged 19. Bob Kelsey banged in 20 for last year's All-Navy runners-up.

Fourth round—SERVPAC finally had to take off the wraps and battle for their collective lives in a thrill-packed windup, as PHIBPAC, vastly unimpressed by their earlier 20-point licking at the hands of the Packers, and down 35-28 at the half, refused to roll over and play dead and came storming back to out-score the champs 44-41 over the final 20-minute session.

Big Connie Burke, who topped all SERVPAC scorers with a 22-point average for the tournament, saved the Packers' bacon in the finale by rapping in the majority of his 26 big markers during that wild second half. General Lee Davis and Jack Stromberg added 14 and 12 for the winners, while PHIBPAC's fine shot-maker, Jim Henry, remained in his starring role with a fourth consecutive 23-point effort.

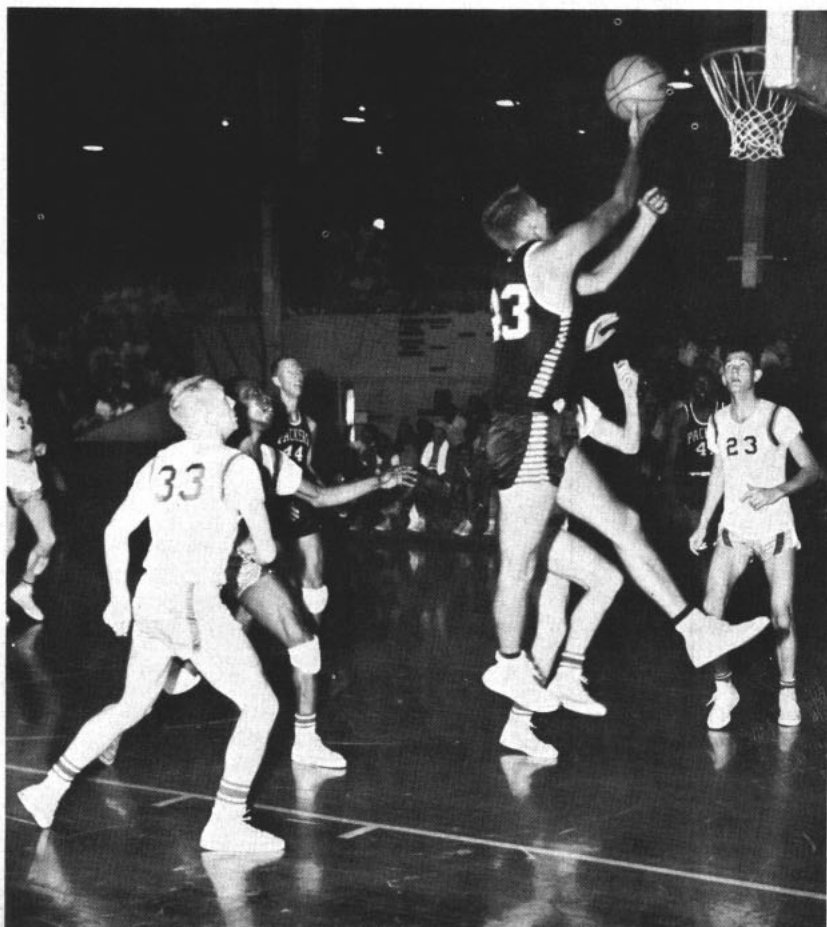
Named to the All-Navy squad for the trek to the Inter-Service and National AAU meets were Stromberg, Burke, Grout, Mason, Fredrickson, and Davis, plus SERVPAC's Bernie Simpson, Chuck Henry and Steve Smith, and augmentees Henry



HIGH STEPPING player from Naval Security Station goes for the basket.

Rapp of PHIBPAC and SERVLANT's Jerry Butcher. Jim Henry, PHIBPAC's crowd-pleasing 5-10 buzz-saw, who racked up a sports "one for the book" with his four straight 23-point games, was an overwhelmingly popular choice for most valuable player honors. He was a unanimous pick for the All-Navy squad, but was unable to make the trip to Colorado.

CHAMPS AGAIN—ComServPac Packer lays one up during All-Navy tourney.



THE WORD

Frank, Authentic Advance Information On Policy — Straight From Headquarters

• **CHECK THAT WAIVER** — If you have either an NSLI or USGLI insurance policy under waiver of premiums, you will soon be hearing from the Veterans Administration. A punched card and a pamphlet, now being prepared by the VA, will be sent to you via your CO.

The card and pamphlet will contain information designed to be helpful to you. At your duty station you will be counseled to enable you to decide whether to continue the waiver or to resume payments on the policy.

A policy under waiver can have a major effect on the size of the payments your survivors would receive. Death compensation under Public Law 73-3 (rather than the newer Survivor Benefits Act of 1957) would be payable. Generally, these rates are considerably lower than the ones that apply to survivors of those who either have no government insurance or are paying the premiums on their government insurance.

In short, the "Dependency and Indemnity Compensation for Widows (or Children)" provisions of the Survivor Benefits Act would *not* apply if the premiums of your government insurance are still under waiver. In general, the Survivor Benefits Act provides higher rates of payment to survivors. It may be to your advantage to look into this matter. And that is what the card and pamphlet

being sent you by the VA are designed to help you do.

More complete details about this subject are contained in BuPers Inst. 1741.12.

• **NAVY RECRUITERS WANTED** — If you've a hankering to try your hand at Navy recruiting, and if you'll be eligible for shore duty any time during the next fiscal year, the time is ripe.

BuPers personnel planners anticipate a sizable turnover in the canvasser (or go-out-and-beat-the-bushes) type of recruiters during the fiscal year commencing 1 Jul 1961. Present indications are that the number of Navymen on the current recruiting Seavey list will not be sufficient to meet the expected requirements. If you think you can meet the eligibility requirements — which are set forth in Chapter Four of the *Enlisted Transfer Manual* (NavPers 15909A) — submit your request for recruiting duty through normal Seavey channels.

• **SEAPOWERS SERIES**—A new presentation — *New Frontiers for Seapower*—has been distributed to most naval activities for use by requesting organizations in their areas.

This informative, illustrated, talk is given in non-technical language and is complete with 35mm color slides. It is twenty-five minutes in length.

Several stimulating 16mm films are also available through the Seapower program. They are —

MN-8982 — *Summer Incident* (about the Navy in the Lebanon crisis).

MN-8794—*Navy Wives* (dedicated to the key member of the Navy family).

To schedule a presentation for any gathering, either military or civilian, contact the nearest Naval Station, Naval Air Station, Naval Reserve Training Center or Naval District Headquarters. Requests for the Washington, D. C., area should be sent to the Office of the Chief of Naval Operations (Op-09D2).

Upon request, an officer will visit

the requesting group bringing all necessary equipment for the showing and will be prepared to conduct a question and answer period to aid understanding of the presentation.

• **NAVY COMMAND TO CLOSE**—The Eighth Naval District, with headquarters in New Orleans, La., the Naval Station, New Orleans, and certain other naval activities in various parts of the country have been ordered disestablished.

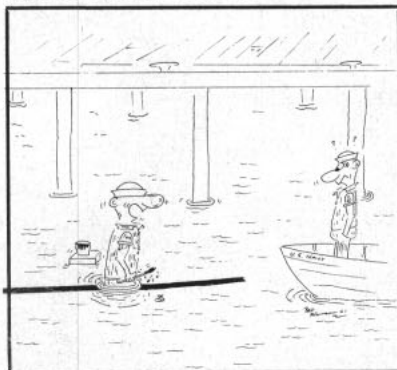
The area of the Eighth Naval District will be absorbed by the Sixth and Eleventh Naval Districts. Louisiana, Texas, Oklahoma and Arkansas join the Sixth, and New Mexico joins the Eleventh Naval District.

In addition to ComEight and NavSta NOLA, the following Navy Installations or sections of activities in the United States have been ordered disestablished:

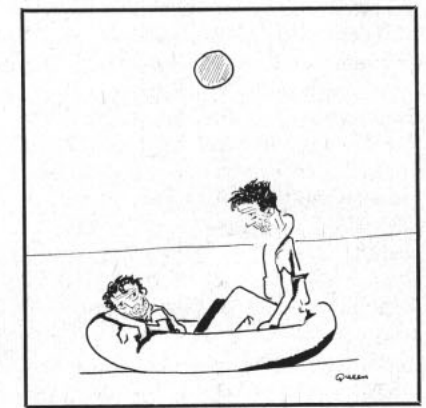
- Elliott Annex to Naval Supply Center, San Diego, Calif.
- Nuclear Weapons Supply Annex (Navy), San Diego, Calif.
- Atlantic Reserve Fleet site, Green Cove Springs, Fla.
- Naval Industrial Shipyard, Tampa, Fla.
- Naval Air Technical Training Unit, Naval Air Station, Olathe, Kan.
- Long Island (Maine) Storage Annex of the Naval Fuel Depot, Casco Bay, Maine.
- Inspection and tests performed at U.S. Naval Engineering Experiment Station, Annapolis, Md. (This work represents about 10 per cent of that done at the station.)
- Atlantic Reserve Fleet site, Boston Naval Shipyard, Boston, Mass.
- Supply operations of Construction Battalion Center (Navy), Gulfport, Miss.
- Government facilities at New York Shipbuilding Corp., Camden, N. J.
- Pacific Reserve Fleet site, Tongue Point, Ore.

All-Navy Cartoon Contest
Donald R. Queen, QMC, USN

All-Navy Cartoon Contest
Peter A. Hansen, EN2, USN



"Whatsa matter stupid, hain't you ever seen anybody paint a water line."



"Could we change places? I get dizzy riding backwards."

- South Field of Naval Auxiliary Air Station, Kingsville, Texas.
- Atlantic Reserve Fleet site, Orange, Texas.
- U.S. Naval Auxiliary Air Station, Port Isabel, Texas.
- Naval Supply Depot, Clearfield, Ogden, Utah.
- U.S. Naval Degaussing Station, Bremerton, Wash.

With the exception of the Naval Industrial Shipyard at Tampa, Fla., which will be disestablished during fiscal year 1963, other commands listed above are expected to be disestablished during fiscal year 1962.

• **AMERICAN FLAG**—You can now buy a 50-star American flag, complete with flagpole and attachments at the Navy Exchange at a very attractive price.

Navy Exchanges throughout the world now stock the popular three-by-five-foot flag but will order a different size flag if you wish. Navy Exchanges are adding only transportation fees and overhead to their cost.

Here's a chance for all naval personnel and their families to buy our national flag at moderate cost.

• **MEASURING LEADERS**—"How do you measure leadership?" That's one of the questions that has arisen in connection with the Navy Leadership Program. In an attempt to answer part of this question, a pamphlet has been prepared and is being sent to all ships and stations.

Entitled "Indicia of Naval Leadership," this 12-page pamphlet contains information compiled from various sources. It is being sent out in an effort to field test its value. Most of the information is presented in the form of one-sentence benchmarks or guidelines.

The pamphlet covers five major areas of leadership: Military Standards, Command Climate, Personal Example and Conduct, Managerial Effectiveness, and Leadership Improvement Effort. The subject of Military Standards is broken down into Discipline and Smartness, and Drill, Ceremony and Etiquette. Managerial Effectiveness has three portions: Organization, Supervision and Training, and Controlling and Evaluating.

A comment and evaluation sheet concludes the pamphlet. This sheet may be detached and used for forwarding comments. Though comments are welcomed, they are not required from all recipients. A limited number of commands will, how-

ever, be required to submit the comment sheet.

"Indicia of Naval Leadership" is being distributed as an enclosure to BuPers Notice 5390, which also points out its different uses. The various guidelines not only serve for leadership inspectors, but also form a blueprint of action for those about to be inspected. (But care must be taken not to focus too much attention on the routine accomplishment of "check-off items.")

The guidelines should actually be used in several inspections over a period of time. (But a desk-bound or purely mental review of them is of very limited value.)

The guidelines are not meant to add up to a total of *yes* or *no* answers that can be graded. Instead, at this early stage they will assist the leadership inspector or reviewer in arriving at a meaningful conclusion.

• **UNIFORM CHANGES**—You can now tell a petty officer below the grade of CPO, even when he's wearing a peacoat or overcoat.

As a result of the most recent uniform changes approved by the Secretary of the Navy, petty officers (third through first) are now required to wear a rating badge on their peacoats. The badges will be the same as those now worn on blue jumpers and will be sewn on the left sleeve, midway between the shoulder and elbow and centered on the outer face of the sleeve. Wave petty officers below CPO must wear their rating badges on their overcoats. Rating badges should not be worn on raincoats, nor should service stripes be worn with the rating badges on peacoats or overcoats.

Here are some other uniform changes. They are already in effect:

Khaki Hat Cover—A khaki, plastic-coated cap cover for the combination cap has been approved for optional wear by officers and chief petty officers. It is a detachable, plain, khaki, plastic-coated cap cover that simulates khaki fabric. It may be worn in place of the khaki fabric cap cover unless the fabric cover is prescribed.

Unit Identification Marks—Enlisted personnel below CPO, who are assigned to the Military Departments of USNS transports, may wear on their uniform the unit identification mark consisting of the letters MSTs followed by either LANT or PAC, depending on the Fleet to which they are assigned.

Shipboard subjects, familiar to most, are involved in this month's quiz. Watch some of these, for they could be tricky.



1. Used daily aboard ship is a publication which outlines the ship's administrative set-up and contains the various bills (berthing & locker, landing party, general emergency, man overboard). It is: (a) Ship's Administration and Organization Manual (b) Ship's Operations and Organization Manual (c) Ship's Organization and Regulations Manual.

2. The bow-to-stern curve in this ship's main deck is called: (a) camber (b) sheer (c) tumble-home.



3. A ship carrying sufficient ordnance or aircraft armament to warrant a gunnery department also has a gunnery officer to head up that department. His assistant for deck seamanship is the: (a) deck division officer (b) main battery officer (c) first lieutenant.

4. The damage control assistant is an assistant to the ship's: (a) engineer officer (b) damage repair officer (c) operations officer.



5. Responsible for the care and routing of all ship's correspondence is the: (a) ship's secretary (b) assistant executive officer (c) senior yeoman.

To find out how well you did on this salty quiz turn to page 53.

THE BULLETIN BOARD

This Is Must Reading for the Navy Family on Overseas Duty

MANY NAVYMEN who are stationed abroad have felt the effects of the U.S. balance of payments deficit, a subject which has been widely publicized since late last year.

Don't let the technical-sounding phrase "balance of payments" snow you under. You do not have to be an economic wizard to understand the subject and how it affects you.

The U.S. balance of international payments is simply what's left in the Treasury at the end of a fixed period after all dollars have entered or left the country.

A balance of payments deficit can develop when the flow of dollars abroad creates a drain on our gold reserves. For example, if you were to buy merchandise from a local businessman in Europe, the money you give him would eventually be combined with other dollar receipts in that country, and then exchanged for the gold which we use to back up our currency.

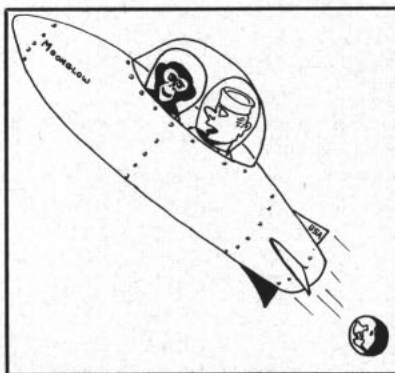
The U.S. is authorized by law to sell a portion of its gold to foreign central banks or governments at \$35 per ounce. Foreign requests for the exchange of dollars for gold can be increased when a U.S. balance of payments deficit is of sufficient size to put dollars in a state of plenty abroad.

When this happens, there could not only be a heavy run on our gold reserves, but the value of the U.S. dollar could be placed in a state of distrust.

Such a state was foreseen by U.S. economists late last year. They recognized that the heavy spending of American dollars by U.S. citizens overseas had created a drain on our gold reserves. This wasn't a new and disastrous situation for the U.S. economy, but was alarming compared to our status 10 years ago.

During most of the post-World War II period, sales of gold were made to friendly nations to boost their reserves. Then, in 1950, the U.S. balance of payments entered a state of deficit. Thereafter, the U.S.

All-Navy Cartoon Contest
George H. Strube, RMC, USN



"... and when the yeoman told me to fill out this Moonvey card I figured I'd go along with the gag."

had a consistently unfavorable annual balance of payments which averaged about 1.5 billion dollars until 1957 (when the economic events which resulted from the Suez crisis brought about an approximate balance).

In 1958 and 1959 the unfavorable balance shot up to 3.5 and 3.8 billion dollars respectively.

To help correct this situation, in 1960 the government encouraged a drive which resulted in record exports. This quieted fears that the U.S. had priced itself out of world markets, but failed to reduce the unfavorable balance of payments below the 3.5 billion level. The reason: Increased U.S. investments abroad and an outflow of "hot" capital (money deposited abroad to take advantage of high interest rates).

The outflow of gold continued in 1959 and the first half of 1960, but at a much slower pace. It suddenly accelerated last July and amounted to about 1.5 billion dollars by the end of 1960.

As more and more foreign concerns cashed in the dollars they received from American shoppers, the Treasury Department decided it was

necessary to take corrective measures.

When economists examined the problem, they found that foreign aid, the outflow of private capital, tourist expenditures, and military spending abroad were behind the balance deficit.

Breaking these categories down further, it was concluded:

- In the field of foreign aid, assistance from our government has been reduced to war-stricken nations that have recovered from the effects of the war years, but it is generally recognized that our deepening problems in Africa and Latin America will keep these expenditures high.

- Attempts to restrict private capital are not desirable because of the basic U.S. principle of free trade.

- As for tourist expenditures, the travel of Americans abroad as tourists is desirable in order the better to acquaint both American and foreign citizens with each other and their ways of life, and to engender international friendship. Tourists could reduce expenditures but should not be discouraged from travel abroad.

- However, it was demonstrated that major reductions in the approximately three billion dollars spent each year in the support of the U.S. military overseas could be realized. The point was, could this be achieved without throwing an unequal burden on the serviceman and his family overseas?

An early plan, which called for a reduction in the number of dependents overseas (ALL HANDS, Feb 1961), has been rescinded. Thus, the Navyman on overseas assignment can expect to take his family with him, as in the past.

But, to make up for the difference, each U.S. government worker and dependent overseas is being requested voluntarily to reduce his (or her) expenditures on foreign-made goods by \$75 to \$110 a year.

The over-all aim of the new program, which was outlined in Alnav

10 recently, is to encourage you and your dependents to buy only those foreign goods which:

- Are sold in exchange outlets or other approved U.S. military operated resale activities. (Such purchases at exchanges and commissaries, while benefiting the foreign economy, serve to protect the U.S. gold balance.)

- Are required for your use or that of your household incident to overseas duty, and when a reasonable substitute cannot be procured from an exchange outlet or from the U.S.

- Expenditures other than those covered in the two categories above should not exceed a total cost of \$100 a year for each shopper. (Keep your unnecessary expenditures to a minimum.)

To repeat, the goal for each Navyman and each member of his family is to cut personal expenditures overseas by \$75 to \$100 a year. The Secretary of Defense will also cooperate with the Treasury Department by initiating a program for increased participation in the purchase of U.S. Savings Bonds through allotment plans.

It was also made clear that DOD will take no action to urge the extension of the 1942 act which at present affords the free entry into the U.S. of bona fide gifts from servicemen to the extent of \$50 per shipment. (It expires on 30 Jun 61.)

An analysis of other measures shows:

- Non-appropriated fund regulations will be amended to encourage the sale of U.S. goods and certain foreign products, which have previously not been available in overseas exchanges, and thereby had necessitated the purchase of these items outside of government sources.

- U.S. military commanders overseas will encourage servicemen and dependents to institute savings programs that will average \$100 per year.

- Commanders will use servicemen for after-hours employment in non-appropriated fund activities, and dependents for full-time work in non-appropriated fund positions to the maximum extent possible.

Forthcoming directives will clarify other portions of the new program. Manuals and directives which conflict with Alnav 10 will be corrected.

Reports of Navy Dependents Outside Continental U.S.

A report that applies to all activities having personnel diary reporting responsibilities is the "Semiannual Report of Navy Military Dependents located Outside the Continental U.S." (BuPers Report 1080-88.)

It is submitted as of the last day of March and September each year, and shows the numbers of dependents (both authorized and unauthorized) outside the continental United States.

Previously the report had been sent to the Bureau of Naval Personnel through COMSERVLANT or CINCPACFLT. Starting with the March

1961 report, however, it now goes directly to the Chief of Naval Personnel.

Negative reports are required from all shore-based or home-ported activities outside the continental U.S. ("Continental U.S." means the states and District of Columbia exclusive of Alaska and Hawaii.) Activities shore-based or home-ported within the continental U.S. report only when personnel assigned to the activity have dependents located outside the continental U.S.

More complete information about this report on Navy dependents, as well as a sample report, are contained in BuPers Inst. 1300.29.

WHAT'S IN A NAME

The Pentagon

One of the most unusual and perhaps best-known buildings in Washington, D.C., is the Pentagon. To military men and civilians alike, it represents the heart of this nation's defense machine.

Department of Defense officials work around the clock, seven days a week, in this five-sided building, to carry on the military business of the United States.

The Pentagon is different from other buildings in many respects.

First of all, the Pentagon is the world's largest office building. It is twice as large as the Merchandise Mart in Chicago, and has three times the floor space of the Empire State Building in New York City.

In addition to the 34 acres on which the Pentagon building sits, there are 200 acres of lawns and terraces which surround it. The Pentagon has five floors, a mezzanine, and a basement. Its five concentric rings are connected by ten spoke-like corridors.

Parking space at the Pentagon covers about 67 acres, and can accommodate some 9300 vehicles. Commercial transportation is also available at the Pentagon. Two commercial bus companies operate about 800 trips in and out of the building each day.

Some 680,000 tons of sand and gravel were dredged from the nearby Potomac River to construct the Pentagon, which is built on 41,492 concrete piles.

Inside the Pentagon are 65,000 light fixtures, which need 1000 electric bulbs replaced each day. Operation, maintenance and repair of the building and its equipment require the services of about 700 persons.

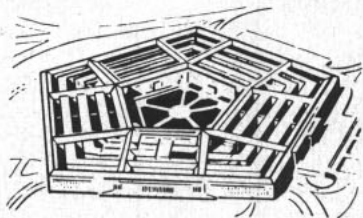
Even though there are 17 and one-half miles of corridors in the Pentagon, the maximum distance between any two rooms is

only 1800 feet, or about a six-minute walk. The distance around the outer edge of the building is about one mile. There are 150 stairways and 19 escalators between floors of the building.

The daytime population of the Pentagon is around 25,000. Peak daytime strength during World War II was 26,500 in April 1945.

A staff of 535 persons in the Pentagon prepare and serve meals from three kitchens, two restaurants, six cafeterias, eight beverage bars and an outside snack bar. Pentagon personnel consume 30,000 cups of coffee, 7000 pints of milk, and 3200 soft drinks during an average day.

Inside the Pentagon building are numerous facilities which include banking service, medical and dental clinics, post office, barber shop, jewelry store, railway and airline ticket service, dry cleaning and laundry shop, florist, bakery, drug store, candy store, camera shop, optometry shop, department store facilities, credit union, newsstand, bookstore, uniform and tailoring shop and shoe shine and repair shop.



What Would You Like to Know on the Subject of Navy Pay?

A SUBJECT in which there is a lot of interest by all hands concerned is Navy pay. Chances are you're drawing it on a regular basis and are glad to see it coming in that way. It's the sort of situation you're not likely to ask many questions about. But sooner or later you may run into problems. The following questions (with their answers) have been selected to give you a fairly broad over-view of general pay matters, and are among those most commonly asked.

General and Basic Pay Matters

• *What are the main types of Navy pay?*

There are five main types: Basic pay; basic allowances (one for quarters and one for subsistence); special pay; incentive pay/hazardous duty pay, and miscellaneous pay and allowances.

• *Name the items of incentive pay/hazardous duty pay.*

Aviation pay, submarine duty pay, and a general category covering 10 other types of duty. Examples of these are: Duty as a test subject in thermal stress experiments or human acceleration experiments, parachute jumping, and demolition duty.

• *What are the items included in miscellaneous pay and allowances?*

As the term indicates, there is a variety here. Uniform allowance, clothing allowance, discharge mileage allowance, overseas cost-of-living allowance and lump-sum leave payments are some of them.

• *What publications deal with the above forms of pay and allowances?*

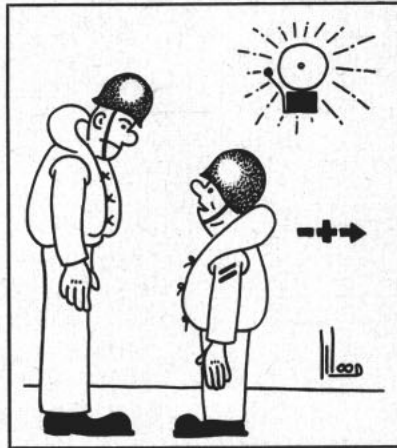
The most complete discussion—more than 500 pages of it—is in the *Navy Comptroller Manual*, Volume 4. Parts of the *BuPers Manual* go into pay matters. Two Navy training courses that deal with the subject are *Disbursing Clerk 3 and 2* and *Disbursing Clerk 1 and Chief*.

• *What about pay and allowances for travel and transportation matters?*

Such pay and allowances, which may be considered as still another type, are covered in *Joint Travel Regulations* and *Navy Travel Instructions*. (Travel and transportation pay matters are a rather complicated subject in themselves and will be covered in a future issue of *ALL HANDS*.)

• *What is the story on advance pay?*

All-Navy Cartoon Contest
Howard P. Wood, Jr., CMA2, USNR



"I found the Cap'n's quarters, an' the Execs' quarters, but no General's quarters."

When the Navy issues a member a set of orders to move from one ship or station to another, the government realizes that the member will encounter numerous expenses in making the move that he would not encounter had the orders not been issued. Therefore, regulations are written to allow the commanding officer to order a payment of public funds to the member which the member has not yet earned.

Many Navymen are of the opinion that PCS orders automatically entitle them to advance pay—that is NOT the case. The Navy's obligation is to provide the individual with enough money to make the ordered move. Therefore, each move must be analyzed as to distance, type of transportation to be used, and time required to make the move.

Also, each case must be analyzed as to number of dependents involved, type of quarters that will be available at the new station, and other financial problems that can reasonably be expected while making the move. These are the items that the commanding officer must consider before ordering the advance. Personal debts, leave en route, and military proficiency should not be considered.

The maximum advance pay a member can draw is three months' basic pay, less withholding tax and Social Security. Since the advance

MUST be repaid in full, a member should "borrow" only what is absolutely needed.

• *When does the advance have to be paid back?*

Normally, the advance in pay must be liquidated in six months, starting on the first of the month following the month in which the advance was made.

• *If I were to make a claim for pay in a complicated or borderline pay matter and the disbursing officer is unable to determine from the available information whether or not it should be paid, what then happens?*

Depending on the case, he either submits a request to the Office of the Comptroller of the Navy for information and assistance in disposing of the claim—or he sends the claim on to the General Accounting Office of the U.S., via the Navy Finance Center, Cleveland. If the claim is for travel payment, it should go to the Navy Regional Accounts Office, Washington, D. C.

• *Is there any deadline for submitting a claim?*

Yes, the time limit is 10 years after the action concerned.

• *Suppose I wanted to let all my money ride on the books for a couple of years. Could I do this?*

No. Everyone is paid in full on 30 June and 31 December, at which time new pay records are ready to go into effect. You are not, however, required to draw your pay at any time other than the end of the two pay record periods.

• *Even though the pay list shows dollar amounts only, can I draw dollars and cents amounts if I choose?*

There are no provisions for doing this.

• *If I have been overpaid a rather large amount one pay day, do I have to pay it all back the following pay day?*

Not necessarily. Rules and regulations provide that if you feel that checkage in a lump sum would cause undue hardship, and if the checkage exceeds two-thirds of your monthly basic pay, incentive pay and special pay, you may submit a written request to your CO via the disbursing officer, indicating your financial condition and the monthly maximum instalments you think you can afford.

Such a request will be endorsed by the CO to the disbursing officer with his determination as to the amount of the monthly deduction to be made from your pay.

• *Can I get paid while on leave?*

Yes, provided you have arranged with the disbursing office to have your check mailed to your leave address. Or—if you have your pay record with you while on leave from overseas or en route between stations—you can get paid by presenting your pay record, ORIGINAL orders and ID card to a Navy or Marine Corps disbursing officer, or if neither Navy nor Marine Corps disbursing facilities are available within a reasonable distance, to an Army or Air Force finance officer.

• *Which is the usual method of holding pay day—by cash or by check?*

The usual shipboard method is through cash payments in the military payroll system. At shore activities the usual method is to pay by check, though there are many exceptions to this.

• *If at my duty location the usual method is to make cash payments, may I draw my pay by check?*

You may request to be paid (on a one-time basis) with a government check. The request should be made to your disbursing officer at least five days before you desire it.

• *When is pay day normally held?*

Unless otherwise directed by the CO, regular payments are made on the first and 16th days of the month to officers and on the fifth and 20th days of the month to enlisted personnel.

• *What is the basis for determining my Navy pay?*

Practically all pay matters are based upon public laws of the U. S. The chief law in this respect is the Career Compensation Act of 12 Oct 1949 (as amended by the Career Incentive Act of 1955).

• *I notice that pay charts are, in part, based on "cumulative years of service, active and inactive." What kind of service does this refer to?*

Service in any branch of the armed forces, Regular or Reserve; Coast Guard; Coast and Geodetic Survey, National Guard, Philippine Scouts, Enlisted Reserve Corps—and so on. There are, in all, a total of 43 creditable organizations.

Allowances

• *What are allowances?*

Allowances are extra payments that help you to meet certain expenses of Navy life. Some are made on a monthly, or recurring, basis; others are one-shot affairs. Some are paid automatically; others require that you submit an application.

• *What are the "basic allowances" for enlisted personnel?*

There are two main types: Basic allowance for subsistence (BAS) and

basic allowance for quarters (BAQ).

• *How do they differ?*

BAS is paid if you are not subsisted (provided meals) at government expense. No such simple statement can be made for BAQ, however. Basically, BAQ itself is of two types: For those with dependents; for those without dependents.

If you have dependents, BAQ is payable if they do not occupy public quarters. The rate varies from \$51.30 to \$96.90 per month. However, for

WAY BACK WHEN

Shipboard Routine — A Century Ago

In some ways it was much like conditions today, in other ways quite different—we mean ship's routine, 90 or 100 years ago.

There was a daily routine, a weekly routine, a bi-weekly routine and a monthly routine. Daily at-sea chores were usually performed on a watch-and-watch basis. Except for those with special duties (cooks, sick-bay men and yeomen), crewmen were either in the port watch or starboard watch—which amounted pretty much to being four hours on and four hours off while the ship was underway.

At 0700 reveille was held for the men of the off watch, who had hit their hammocks just three hours earlier. This watch ate breakfast at 0730 and relieved the on-duty watch at 0800. Much of the work during the 8-to-12 period went into the setting of sails, squaring away the yards and so on. At 0900 sick call was held. Thirty minutes later the crew went to quarters for inspection. Next was a period of shipboard drills. Then came a spell of routine ship's work.

From 1200 to 1230 the off watch ate and then relieved the watch. The relieved watch ate from 1230 to 1300.

The afternoon was usually devoted to a drill with sails or with the ship's boats. Or perhaps there was a workout with small arms. Along about 1630-1700 the evening meal usually began. It was followed by evening quarters for muster. Shortly after sunset hammocks were passed out. At 2100 tattoo was beaten by the ship's drummer, and taps came five minutes later.

The weekly routine went much like this: Sundays only essential cleaning was done, and divine services were held. Each day of the week clothes were scrubbed. The decks were scrubbed on Mondays, Wednesdays and Fridays, with sand used during the Wednesday scrubbing.

Saturday was the big field day. Decks were holystoned, woodwork was scrubbed and the ship cleaned inside and out.

As for weekly drills—general quarters drills were on Monday. Exercises at the great guns and with small arms, swords and cutlasses were held Tuesdays, Wednesdays and Thursdays. Once a week the landing party was mustered, issued its field gear and put through its paces; and once a week all boats were lowered and the boat crews given a workout.

On a bi-weekly basis, hammocks were scrubbed one Monday and bedding the next. Every other Saturday the wind-sails were scrubbed, and every other Wednesday such items as the hose reel covers, boat covers and gangway screens were scrubbed. The mess cook of each mess drew his mess stores every two weeks.

Once a month a "general muster" was held—at which time the paymaster received count of the ship's company. Payday was also held monthly. Once each month hammocks were triced up in the rigging, opened out, and the bedding thoroughly aired. On the last day of the month each division officer inspected the clothing and sea bag articles of each man, and made out requisitions for shortages. A few days later the paymaster issued the articles needed.

Then, as now, the shipboard routine was a busy one.



The Ins and Outs, Offs and Ons of Sea Pay

"I don't see how you guys figure it that way. I was at sea, so why don't you give me sea pay?"

Disbursing clerks throughout the Navy frequently hear similar statements by unhappy Navymen who think they're getting less than what is coming to them. Usually such men consider themselves special cases. Sometimes they are.

We couldn't possibly cover in one article all the unusual situations that arise concerning sea pay, but we can try to give you a general understanding of what you get and when you get it.

Recognizing the extra hardships that often go hand-in-hand with sea duty, the Navy tries to help compensate her enlisted men with monetary rewards. This is officially called Sea and Foreign Duty Pay in the *Navy Comptroller Manual*, but is usually referred to as "Sea pay" by the men who receive it.

Sea pay is generally authorized from the date you report to sea duty (or the date of departure from the continental U. S. if you're going overseas) until you are detached from your ship, or return to CONUS. Your sea pay continues even if your ship operates in the inland waters of the U. S.

If you serve aboard a non-self-propelled vessel, or a ship that is in an inactive duty status, you'd draw

sea pay for only those days your ship is operating at sea for eight days or more.

The amount of sea pay you receive depends on your rank. If you are an E-1 or E-2 you receive \$8 a month. An E-3 draws \$9 a month extra, E-4s \$13, E-5s \$16, E-6s \$20, and E-7s through E-9s reap an extra monthly harvest of \$22.50.

The most confusion seems to crop up when trying to determine if you're eligible for sea pay while on TAD or serving at sea in a "For Further Assignment" status.

First, let's examine the eligibility requirements for TAD personnel.

If you're now on sea duty, and should go ashore for TAD, your sea pay would continue if you return to sea duty within 15 days. If you stay ashore more than 15 days you lose your sea pay for the entire tour of TAD.

The same holds true for aviation personnel permanently assigned to ship-based (or overseas) aviation units. You can go ashore on TAD and still draw sea pay if you get back to sea duty within 15 days.

If you're a shore duty sailor, however, and are sent to sea for TAD, you'd be eligible for sea pay only if your sea duty is for eight days or more. If it isn't, you receive no sea pay. If it is at least eight days, your sea pay would commence the day

you reported to sea duty, and would continue for the duration of the TAD at sea.

The eight-day ruling also applies to men who are at sea for further assignment (FFA). There are exceptions, however.

For example, if you report to a ship from CONUS shore duty for FFA and are reassigned to another ship or overseas billet, you will be eligible to draw sea pay from the day you reported, even if the time you spend in that status is less than eight days.

If you should go from CONUS shore to another non-sea duty billet, you wouldn't be paid for FFA time at sea unless you were aboard for eight days or more.

On the other hand, if you are transferred from one sea billet to another sea duty ship or station for FFA, your sea pay would continue if you are on board for eight days or more, or if you are permanently transferred to still another sea billet. If you should go to shore duty, your sea pay would stop when you check out of your sea duty billet, unless you go to another sea station for FFA and are there for eight days or more.

You can find S&FD pay spelled out in further detail in Par. 044060 of the *Navy Comptroller Manual* (NavExos P-1000).

your dependents to qualify, you must have in effect an allotment of \$91.30 to \$176.90 per month.

If you do not have a dependent, BAQ is payable if you are not assigned quarters at your permanent duty station. Ashore, for example, you might be at a location where there are no barracks available. (At sea, of course, your living and berthing compartments are your quarters and you would not draw BAQ.) The rate is \$51.30 monthly.

• *Who are considered as dependents?*

Your wife, children or stepchildren (under 21 years). A parent or step-parent who relies on you for more than half of his or her support may also be considered as a dependent.

• *What are the rates for BAS?*

They vary. When rations in kind (government mess or government-provided meals) are not available—\$2.57 a day. When permission has been granted to mess separately (commuted rations or leave rations)—\$1.10 a day. When assigned to duty under emergency conditions where no available government messing facilities are available—\$3.42. (These are subject to change.)

• *What is meant by "ComRats"?*

Commuted rations. ComRats are usually limited to married men living off the base who have been granted the privilege of messing away from their naval activity. When they do eat in the mess hall they pay for each meal.

• *I would like to have my family allotment check sent directly to the*

bank and deposited in my wife's account. Is this possible?

Yes, you may do this. Your wife's allotment may be registered to a bank to her account. But it is necessary for you, not your wife, to make the change.

Special Pay

• *What is included in special pay?*

Proficiency pay, reenlistment bonus, diving duty pay, special pay for physicians and dentists, sea and foreign duty pay—these are items of special pay.

• *Do "special pay" and "special money" mean the same thing?*

No. Special money refers to money drawn at a time other than the regular twice-a-month pay day. (It's usually applied for through a special

request chit.) On the other hand, special *pay* refers to certain forms of pay, such as those shown in the above answer.

• *For the purpose of sea pay or foreign duty pay, when does such pay begin?*

Sea pay begins the date of reporting aboard ship for sea duty. Foreign duty pay begins on the date of departure from the U.S. (See box below.)

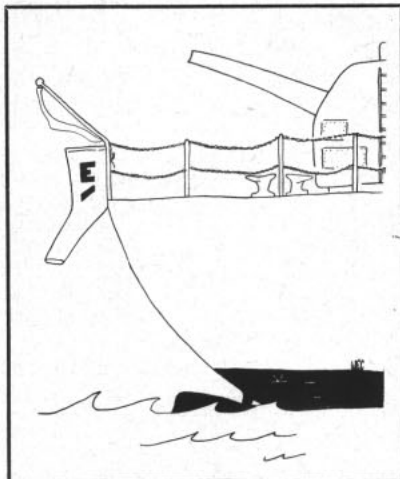
• *What is the most recent form of special pay?*

Proficiency pay. The beginning date was 16 Nov 1958. For details on pro pay see ALL HANDS, January 1959, pp. 47-49 and December 1959, pp. 48-49.

• *In regard to the reenlistment bonus, what is meant by the "90-day limitation"?*

You must reenlist on or before the 90th calendar day after the date of last discharge or release, or date of expiration of enlistment. For example, if you were discharged on 15 November, you would have to reenlist on or before 13 February to be entitled to the bonus.

All-Navy Cartoon Contest
William E. Cass, SM2, USN



Incentive Pay/Hazardous Duty Pay

• *What are the incentive pay rates for hazardous duty?*

For enlisted men, the aviation and submarine duty pay ranges from \$50 to \$105 monthly. For officers it ranges from \$100 to \$245. It varies

according to pay grade and length of service.

The other types of hazardous duty pay amount to a flat \$55 a month for EMs and \$110 a month for officers.

• *Is it necessary that a man be designated "Qualified in Submarines" before he can draw submarine duty pay?*

No. However, you must be attached to an active status submarine.

Miscellaneous Pay and Allowances

• *What are the main types of clothing allowance?*

There are three. First is the Initial Clothing Monetary Allowance (ICMA). Recruits, among others, draw this one, which amounts to \$169.25. (This amount may vary from year to year.) Second is the Special ICMA, which provides funds to those who wear clothing of a type not customarily required by the majority of those in the Navy. It goes to those being assigned to certain Navy bands, for example. It is also paid upon promotion to CPO. The rates

Where Else Can You Save At Four Per Cent Interest?

Wise old Ben Franklin found time—between thunderstorms—some 200 years ago, to write in *Poor Richard's Almanac*, "If you would be wealthy, think of saving as well as getting." And while Ben was talking about English pounds and shillings in those pre-Revolutionary days, his words make just as much sense today as they did the day they were written.

Whether you're heading for civilian life within the next year or two, or pointing toward 19 and six, it's a pretty safe bet that when you've finally become just plain Mister Doe again, you'll get a chance to sit back and evaluate your situation—and you'll probably find yourself wishing you'd salted away some of that good old Navy pay. A healthy poke in the bank, which you could tap for college tuition, or for a down payment on a new house, a new flivver or what-have-you, would no doubt look mighty good to you right about then.

It's up to you.

The Navy, on the assumption

that you're an adult capable of making your own decisions, doesn't attempt to force you to save. It does, however, make available to you, if you are an enlisted man serving on active duty for six months or longer, one of the best—and most painless—savings methods around; the Navy Savings Deposit Program.

In the first place, funds deposited in the "Navy Bank" for periods of six months or longer earn interest for you at the rate of *four per cent yearly*—more than you can get at most banks.

Interest is computed at the time of repayment of the deposit. The money may be withdrawn at the time of your release to inactive duty or discharge, or at any other time in the event of a bona fide emergency. All you'll be required to do is furnish proof to your CO that such an emergency actually exists—a precautionary move instituted by the Navy to prevent willy-nilly opening and closing of NSDP accounts.

You may make deposits by cash

in person to your disbursing officer each pay day if you prefer, but a much easier and more popular method is through automatic checkage of your pay record. Best of all, it takes but one visit to the disbursing office to set the whole thing up. On this initial, and only, visit you request in writing that your pay record be checked each month for a specified sum, which must be in full-dollar amounts, and cannot be less than five dollars per month. You may request cancellation of the plan, in writing, at any time. One cautionary note—upon transfer, your account will automatically be closed out, *and must be reopened by you in person at your new duty station*. Your disbursing officer will be happy to supply you with complete details.

As we said, it's all up to you. Saving through the NSDP could mean a few less trips to the gedunk each month now. But you'll be surprised at how fast those monthly savings mount up and how good it is to have a little standing by.

vary, but usually it is \$300.

The third type is the Maintenance Clothing Monetary Allowance. There are two categories, Basic Maintenance Allowance (BMA) and Standard Maintenance Allowance (SMA). For the recruit who draws the ICMA, the BMA of \$4.20 a month starts six months later. It continues for three years, at which time the SMA of \$6.00 a month begins.

• Is it necessary to apply for the clothing allowance?

No. The disbursing officer takes care of this on the basis of information supplied by the personnel office.

• Do officers draw a clothing allowance?

No. Reserve officers draw, under certain conditions, a uniform allowance which is paid on a one-time basis.

Other Pay Matters

• On my pay record and the annual Withholding Statement (W-2 Form) I notice the letters FICA and the words FICA tax and FICA wages. What does FICA mean?

Federal Insurance Contributions Act. FICA wages, which are those taxed for Social Security purposes, are your basic pay.

• Which items of my military pay are subject to Federal income tax?

Generally, all items of pay—except uniform allowances, subsistence allowance and quarters allowances.

• Say I have been out of the Navy six months, and then it is discovered that I had been overpaid a certain amount. What would happen?

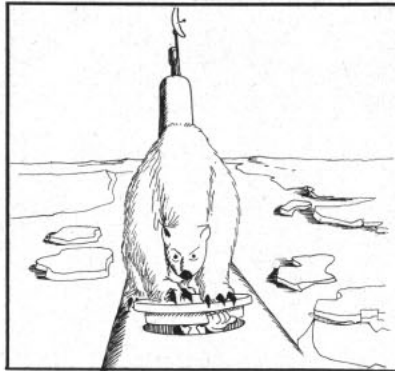
Latest Petty Officer's Guide Is Off the Presses

A new edition of the *Petty Officer's Guide* is off the presses containing up-to-the-minute information on rotation, advancement, schools, pay, personal and family affairs, leave, liberty and travel.

Two new chapters have been added — one on the U. S. Coast Guard and the other on Proficiency Pay as it applies to Navy petty officers. The chapter on Leadership has been expanded and deepened in accordance with the Naval Leadership Program.

This edition is now available at most Navy Exchanges.

All-Navy Cartoon Contest
James R. Odbert, DM2-P1, USN



"The hatch seems stuck, Captain."

First you'd hear from the Navy Finance Center (Cleveland, Ohio) asking you to settle up. If you didn't respond, you'd then hear from the U.S. General Accounting Office.

This is a general roundup on the subject of pay. If it hasn't answered your particular question, it's probably because your situation is different from that of most Navymen. Your disbursing officer will be able to help you out. For a report on how you get paid, see the March 1961 issue of ALL HANDS, p. 2.

DIRECTIVES IN BRIEF

This listing is intended to serve only for general information and as an index of current Alnavs and NavActs as well as current BuPers Instructions, BuPers Notices, and SecNav Instructions that apply to most ships and stations. Many instructions and notices are not of general interest and hence will not be carried in this section. Since BuPers Notices are arranged according to their group number and have no consecutive number within the group, their date of issue is included also for identification purposes. Personnel interested in specific directives should consult Alnavs, NavActs, Instructions and Notices for complete details before taking action.

Alnavs apply to all Navy and Marine Corps commands; NavActs apply to all Navy commands; BuPers Instructions and Notices apply to all ships and stations.

AINav

No. 10 — Outlines means for reducing overseas expenditures by individuals.

Instructions

No. 1120.18G — Outlines the eligibility requirements and processing

procedures whereby USN personnel may seek appointment to USN commissioned status in either the Integration or LDO programs.

No. 1300.29 — Provides procedures for reporting the number of Navy military dependents located outside the continental United States.

No. 1500.49 — Provides a study plan whereby officers and warrant officers on active duty may broaden their professional background by completion of recommended courses of instruction. It also cancels the mandatory requirements for completion of courses for promotion of officers.

No. 1741.12 — Notifies naval personnel on active duty, who have either USGLI or NSLI policies under waiver of premiums, of the possible effect of such waivers on survivor benefits.

Notices

No. 1020 (24 February) — Implemented recently approved changes to U. S. Navy Uniform Regulations, 1959, and advised of the decision regarding a proposal to eliminate the Service Dress Khaki uniform.

No. 1430 (1 March) — Discussed instructions for the award of proficiency pay to personnel undergoing operational training in the nuclear power program.

No. 1418 (2 March) — Announced that career personnel serving in outstanding effectiveness ratings in pay grades E-4 through E-9 may be recommended to participate in examinations for proficiency pay (P-1), and that eligible career personnel serving in critical ratings in pay grades E-4 through E-7 may be recommended to participate in examinations for P-2 proficiency pay in May.

No. 1520 (3 March) — Announced the selection of officers for post-graduate instruction commencing in fiscal year 1962.

No. 1070 (7 March) — Emphasized the necessity of complying with the requirements of Articles B2326 and C5401 of the *BuPers Manual*, which are concerned with the Record of Practical Factors (NavPers 760).

No. 5390 (14 March) — Transmitted copies of *Indicia of Naval Leadership* with instructions for their use.

No. 1110 (16 March) — Announced the list of active duty personnel in the Navy and Marine Corps who have been provisionally selected for enrollment in the NROTC program.

No. 1120 (22 March) — Summarized the actions taken since June 1959 affecting the warrant officer program and advised warrant and chief warrant officers of their future career outlook.

No. 3590 (24 March)—Announced the schedule, rules and procedures of the 1961 Navy championship rifle and pistol competitions and provided for USN and Naval Reserve participation in the 1961 national matches at Camp Perry, Ohio.

No. 4651 (30 March) — Discussed the revised instructions for the computation of travel time during execution of orders.

List of New Motion Pictures And TV Series Available To Ships and Overseas Bases

The latest list of 16-mm feature movies and TV series available from the Navy Motion Picture Service is published here for the convenience of ships and overseas bases. Two one-hour TV shows are packaged together for a 108-minute program, but may be shown aboard ship only. They are not to be exhibited at shore stations. The movies and TV programs listed below were made available in March.

Movies in color are designated by (C) and those in wide-screen processes by (WS). They are available for ships and bases overseas.

Motion Pictures

Sunrise at Campobello (1683) (C): Biographical Drama; Ralph Bellamy, Greer Garson.

Jet Over the Atlantic (1684): Melodrama; Guy Madison, Virginia Mayo.

Heroes Die Young (1685): Melodrama; Erika Peters, Scott Borland.

The Plunderers (1686): Western; Jeff Chandler, John Saxon.

Secret of the Purple Reef (1687) (C) (WS): Melodrama; Jeff Richards, Margia Dean.

The Sundowners (1688) (C): Drama; Deborah Kerr, Robert Mitchum.

Circus of Horrors (1689) (C): Melodrama; Anton Diffring, Erika Remberg.

Facts of Life (1690): Comedy; Bob Hope, Lucille Ball.

Savage Innocents (1691) (C) (WS): Drama; Anthony Quinn, Yoko Tani.

Goliath and the Dragon (1692)

QUIZ AWEIGH ANSWERS

1. (c) Ship's Organization and Regulations Manual.

2. (b) Sheer.

3. (c) First Lieutenant.

4. (a) Engineer officer.

5. (a) Ship's secretary.

Quiz aweigh is on page 45.

(C) (WS): Melodrama; Mark Forest, Broderick Crawford.

North to Alaska (1693) (C) (WS): Comedy; John Wayne, Stewart Granger.

Frontier Uprising (1694): Western; Jim Davis, Nancy Hadley.

Wackiest Ship in the Army (1695) (C) (WS): Comedy; Jack Lemmon, Ricky Nelson.

The Wizard of Baghdad (1696) (C) (WS): Comedy; Dick Shawn, Barry Coe.

Tess of the Storm Country (1697) (C) (WS): Comedy; Diana Baker, Lee Philips.

Operation Bottleneck (1698): Melodrama; Miko Taka, Ron Foster.

Television Programs

5056 TV-1 (Series) *Wagon Train* — Western; (Episode) The Dr. Willoughby Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) No Bridge on the River.

5057 TV-1 (Series) *Wagon Train* — Western; (Episode) Bernal Sierra. TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) That Taylor Affair.

5058 TV-1 (Series) *Bonanza*—Western; (Episode) Magnificent Adah.

TV-2 (Series) *Cimarron City* — Western; (Episode) Hired Hand.

5059 TV-1 (Series) *Bonanza*—Western; (Episode) El Toro Grande.

TV-2 (Series) *Cimarron City* — Western; (Episode) McGowan's Debt.

5060 TV-1 (Series) *Wagon Train* — Western; (Episode) The Jennifer Churchill Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) River Champion.

5061 TV-1 (Series) *Wagon Train* — Western; (Episode) The John Wilbot Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) The Two Faces of Gray Holden.

5062 TV-1 (Series) *Cimarron City* — Western; (Episode) The Medicine Man.

TV-2 (Series) *Overland Trail* — Western; (Episode) All the O'Mara's Horses.

5063 TV-1 (Series) *Cimarron City* — Western; (Episode) To Become a Man.

TV-2 (Series) *Overland Trail* — Western; (Episode) Daughter of the Sioux.

5064 TV-1 (Series) *Wagon Train* — Western; (Episode) The Mark Hanford Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) The Quick Noose.

5065 TV-1 (Series) *Wagon Train* — Western; (Episode) The Rex Montana Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) Three Graves.

5066 TV-1 (Series) *Overland Trail* — Western; (Episode) Vigilantes of Montana.

TV-2 (Series) *Cimarron City* — Western; (Episode) I, The People.

5067 TV-1 (Series) *Overland Trail* — Western; (Episode) First Stage to Denver.

TV-2 (Series) *Cimarron City* — Western; (Episode) Bitter Lesson.

5068 TV-1 (Series) *Wagon Train* — Western; (Episode) The Tent City Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) Treasure of Hawk Hill.

5069 TV-1 (Series) *Wagon Train* — Western; (Episode) Monte Britten Story.

TV-2 (Series) *Riverboat* — Post-Civil War Drama; (Episode) End of a Dream.

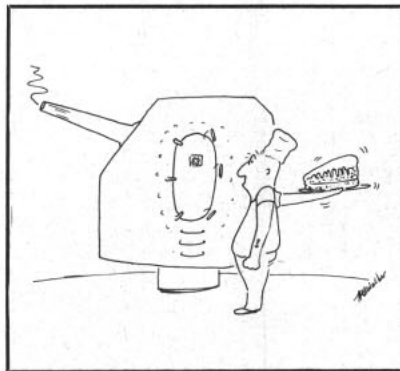
5070 TV-1 (Series) *Overland Trail* — Western; (Episode) The O'Mara's Ladies.

TV-2 (Series) *Cimarron City* — Western; (Episode) The Unaccepted.

5071 TV-1 (Series) *Overland Trail* — Western; (Episode) Perilous Passage.

TV-2 (Series) *Cimarron City* — Western; (Episode) Beast of Cimarron.

All-Navy Cartoon Contest ENS Horace G. Walker, USN



Opportunities for a Commission Are Good for Career CPOs

IF YOU ARE A CHIEF with at least 18 years and six months of active duty, your chances are now good for a direct commission to the rank of LTJG.

This, the Navy hopes, will be a good incentive for experienced chiefs who might otherwise go into the Fleet Reserve, to remain in the Navy as JGs in the Limited Duty Officer (Temporary) program.

Under the old LDO procedure, all successful candidates received commissions as ensign.

A rundown on the eligibility requirements for both the LDO and Integration (Seaman to Admiral) programs, complete with the latest changes, is contained in BuPers Inst. 1120.18G.

If you plan on trying for *either* program, you must:

- Be a U.S. citizen.
- Meet the dependency requirement outlined in Art. C1102(2) of the *BuPers Manual* (for women applicants only).
- Have no record of conviction by a court martial, or conviction by a civil court for any offense other than minor traffic violations for the two-year period preceding 1 July of the calendar year in which application is made.
- Make application in no more than two officer designator codes in a given year.
- Be on active duty at the time application is considered by the selection board, and, if selected, remain on active duty until appointment is tendered.
- Take the Officer Selection Bat-

tery. (This test consists of eight parts: Verbal Analogies, Arithmetic Reasoning, Mechanical Comprehension, Naval Knowledge, English, Mathematics, Science, History and Social Science.)

- Be found physically, mentally and morally qualified. (Final determination as to the physical fitness of all applicants rests with BuMed.)
- Be recommended by your commanding officer.

Applicants must also meet certain qualifications which are required for the individual programs.

THE INTEGRATION PROGRAM, which obtains from the warrant and enlisted ranks men who have a sincere motivation for careers as commissioned officers, is not restricted or limited in the performance of duty.

All Integration appointments are made to the grade of ensign in the Line (1100), Supply Corps (3100), or Civil Engineer Corps (5100) of the Regular Navy. Men who apply for and complete flight training are redesignated 1310.

Men selected for an Integration commission are ordered to the U.S. Naval Schools Command, Newport, R.I., for 16 weeks of General Line officer training. All women selected attend the Women's Officer Candidate School at Newport for an eight-week course, after which they are commissioned and ordered to another eight weeks of training.

Eligibility requirements for the Integration program, in addition to those listed above, are:

- Applicant must be Regular Navy, but not a commissioned officer.

• Be at least 19 and under 25 years of age as of 1 July of the calendar year in which application is made (male applicants only).

• Women must be at least 20 and under 25 years of age as of 1 July of the calendar year in which application is made. (Requests for waivers up to age 30 for exceptionally qualified women will be considered upon CO's recommendation.)

• CWOs, WOs, and CPOs must have two years' continuous active service in any of these combined rates or grades. CPOs and below must have three years continuous active service in the Regular Navy. (Chiefs have the option of computing service in either category.)

• Service computed for eligibility must be continuous in the Regular Navy, covering that period immediately preceding the submission of the application. It is figured as of 1 July of the calendar year of the application.

• Broken service in excess of 90 days is disqualifying, and the computation of Naval Reserve time is not authorized under current provisions.

• Applicant must have successfully completed 30 semester hours of work at an accredited college or university, or have the service-accepted equivalent as defined in *BuPers Manual*, Art. D2103(15), or

Be a high school graduate (or have the service-accepted equivalent), and have a GCT or ARI score of 60 or above.

• Civil Engineer Corps applicants must have completed three years of college credits toward an engineering degree at an accredited engineering school.

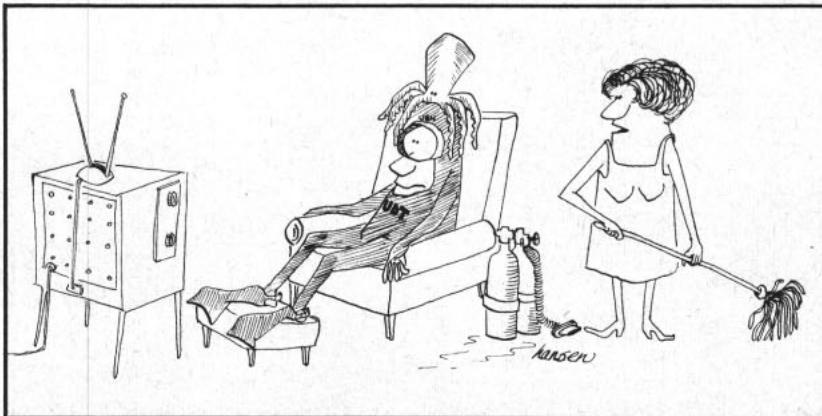
• Candidates who have twice been considered by a selection board are not eligible to make further application.

THE LDO(T) PROGRAM provides a path of advancement to commissioned status for outstanding Regular Navy warrant officers, chiefs, and POIs. An LDO commission limits its holder to duties of the broad technical field with which he worked as an enlisted man or warrant officer. For example, a former Radarman would receive an Operations (601) designator.

All applicants selected for an

All-Navy Cartoon Contest

Neil H. Hansen, AC1, USN



"Normal people bring home stray cats or dogs."

LDO commission are ordered to a six-week officer indoctrination course at Newport or, in the case of aviation specialists, NAS Pensacola.

Eligibility requirements for an LDO appointment not already covered are:

- Selectees will agree not to apply for voluntary retirement or reversion before the completion of three years' service as LDO.

- PO1s must have been first class for at least one year as of 1 July of the year in which application is made.

- For appointment as ensign, applicant must not have reached his 34th birthday as of 1 July of the calendar year in which application is made. (Exception: Men who at time of application are already serving in a temporary commissioned grade of ensign or above, or who previously served in temporary grade of LTJG or above. The maximum age limit is 37.)

- No age limit is set for eligible CPOs who seek appointment to LTJG.

- For appointment as ensign, applicant must have completed eight years of active service (includes Marine Corps and Coast Guard when operating as part of the Navy) on or before 1 July of the calendar year in which the application is made. (Reserve active duty training does not count.)

- CPOs (E-7 through E-9) who seek appointment as LTJG must have completed 18 years and six months' total active service, as computed for purposes of transfer to the Fleet Reserve, by 1 July of the calendar year in which application is made.

- Applicant must be serving in the Regular Navy on the date of written examination (Officer Selection Battery).

- Must be a high school graduate or possess the service-accepted equivalent.

As the selection for both programs is made on an annual basis, an applicant should ascertain his eligibility, and then submit to his commanding officer a request to be considered as a candidate under either or both of the programs.

You should state specifically, and in order of preference, the program title, the officer numerical designator

code and the title for which you are eligible and wish to be considered. Also on this first request, you must furnish your date of birth.

Your CO will then submit to the Naval Examining Center the information to be used for the initial processing of your application, and the Examining Center will forward the written examination material for each applicant.

Annual exams are administered throughout the Navy to all applicants on 15 June. If this date falls

on a Saturday, Sunday or national holiday, the exams are conducted on the next regular working day.

Applicants will be considered by the selection board which is convened annually by the Secretary of the Navy. The board recommends those men deemed best qualified within the authorized quota for appointment in the respective programs.

A complete rundown on the Integration and LDO programs is contained in BuPers Inst. 1120.18G.

HOW DID IT START

Marjorie Sterrett Award

The Marjorie Sterrett Battleship Award has always signified outstanding accomplishments by Navymen. Before World War II, the award went annually to turret and gun crews who made the highest scores in short-range battle practice, and to submarine crews who made the highest scores in torpedo firing. Today it goes to the best ships in the Fleet.

This is how the award came about. It seems that a 13-year-old girl from Brooklyn, N.Y., named Marjorie Sterrett, became concerned about the U.S. being prepared for war. This prompted her, on 2 Feb 1916, to write a letter to the editor of the *New York Tribune*.

It said: "I read in your paper every morning a lot about preparedness. My grandpa and my great grandpa were soldiers. If I was a boy I would be a soldier, too, but I am not, so I want to do what I can to help. Mama gives me a dime every week for helping her. I am sending you this week's dime to help build a battle-ship for Uncle Sam. I know a lot of other kids would give their errand money if you would start a fund. I am thirteen years old, and go to Public School No. 9 in Brooklyn."

With this dime as the first contribution, the *Tribune* started a fund in the name of the little girl who was so interested in Uncle Sam's Navy. The dime grew into a fund which annually earns hundreds of dollars to be used as prize money for recipients of the Marjorie Sterrett Award.

Originally the money went to a small group of men aboard ship. After World War II, however, the Navy emphasized the readiness of the entire ship and made the overall performance of the ship—and not just one of its departments—the criterion for winning the award.

To make sure the most outstanding ship would be selected, only those that had already won the Battle Efficiency "E" Award were considered. From this group, one ship in each Fleet was picked to get the

annual award. They were the best of the best, so to speak.

During the Korean campaign the Battle Efficiency "E" was not awarded, since ships in battle cannot be expected to compete for efficiency with ships not being used in the theater of action.

After the Korean campaign, however, the competition was resumed and, as before, the best "E" Award ship in each Fleet—generally the same ship type in both Fleets—won the Marjorie Sterrett Battleship Award.

For fiscal year 1960, this same procedure was followed. However, there was an abundance of money in the award fund and some months later two additional ships were selected. Thus, two ships in each Fleet received the award.

For fiscal year 1961, even more ships will receive a Sterrett Award. Current plans call for one ship in each type command—six in each Fleet—to win an award. The prize should be about \$330 per ship.

Under the rules set forth for the Marjorie Sterrett Battleship Award, the money must go into the ship's Welfare and Recreation Fund and can only be used to benefit the enlisted crew members. There are almost no other restrictions.



DECORATIONS & CITATIONS



DISTINGUISHED SERVICE MEDAL

"For exceptionally meritorious service to the Government of the United States in a duty of great responsibility . . ."

★ **HOPWOOD, Herbert G., ADM, USN**, for exceptionally meritorious service to the Government of the United States in a duty of great responsibility as Commander in Chief, U.S. Pacific Fleet, from February 1958 to August 1960. Exercising sound judgment and marked planning and organizational ability, which have had a powerful impact on our national posture, he materially strengthened Pacific Fleet antisubmarine warfare forces and improved the readiness of Pacific Fleet striking forces with establishment of the U.S. Naval Defense Forces, Eastern Pacific; Barrier Forces, Pacific; and Antisubmarine Defense Force, Pacific.

★ **HOGAN, Bartholomew W., RADM, MC, USN**, for service as Chief, Bureau of Medicine and Surgery, and Surgeon General of the Navy, from February 1955 to February 1961. RADM Hogan established new objectives in all branches of Navy medical practice, patient care and internship and residency training. He initiated significant changes which doubled the size and scope of the Navy's Internship and Residency Training Programs and raised standards of training. The increased residency training opportunities, as well as improvements in morale, have resulted in a reduction of approximately 50 per cent in the annual turnover of Navy doctors. Under his skillful direction, the scope of medical research has been broadened in all areas.



LEGION OF MERIT

"For exceptionally meritorious conduct in the performance of outstanding service in the Government of the United States . . ."

★ **BEHRENS, William W., Jr., CDR, USN**, for service during 1960 as Commanding Officer of *uss Skipjack SS(N) 585*. Exercising sound judgment, keen foresight, and forceful leadership, CDR Behrens contributed in large measure to the successful completion of a complex and highly important mission of great value to the United States.

★ **MUNSON, William H., CAPT, USN**, for service in the Antarctic during Operation Deep Freeze 60, while serving as Commander, Task Group 43.2 and Commanding Officer of Air Development Squadron Six, from August 1959 to April 1960. Throughout this period, CAPT Munson exercised outstanding professional skill and resourcefulness in supporting the naval aviation program in Antarctica. The aircraft under his command ranged from Thurston Peninsula in Eastern Antarctica to Wilkes Station on the Western shores, and from the South Pole Station to Christchurch, N. Z.

Gold Star In Lieu Of Bird Award

★ **STELTER, Frederick C., Jr., RADM, USN**, for service as Commander Amphibious Group One from March 1957 to May 1958, during which time he led the complex Arctic Resupply Operations (DEW Line) and as Deputy Chief of Staff, Joint Staff, Commander, U.S. Forces, Japan, from June 1958 to January 1961. His vast knowledge and skill as a negotiator were significant factors in the revisions of the Security Treaty and Administrative Agreement with the government of Japan.



DISTINGUISHED FLYING CROSS

"For heroism or extraordinary achievement in aerial flight . . ."

★ **NEWCOMER, Loyd E., CDR, USN**, for extraordinary achievement in aerial flight during Operation Deep Freeze 60 in the Antarctic, while serving with Air Development Squadron Six (VX 6), from 2 Nov 1959 to 17 Feb 1960. As aircraft commander of a ski-equipped aircraft, CDR Newcomer carried out a flight from the Naval Air Facility, McMurdo Sound, Antarctica, to Wilkes Station, Antarctica, a distance of 1170 nautical miles, to evacuate a patient to McMurdo. This flight was conducted over previously uncharted territory, and the landing was made on an unprepared snow surface, with no tower.

★ **SKALLA, Derald Z., LCDR, USN**, for extraordinary achievement in aerial flight from 25 July through 15 Sep 1960 as a Project Pilot of F3H aircraft at the Naval Air Test Center, Patuxent River, Maryland. Assigned the task of evaluating the F3H during afterburner operation in extremely adverse weather, LCDR Skalla succeeded in obtaining invaluable data and in expeditiously completing the project although his air-

craft sustained numerous lightning strikes, frequent airframe damage, and repeated loss of the longitudinal control feel system.



NAVY AND MARINE CORPS MEDAL

"For heroic conduct not involving actual conflict with an enemy . . ."

★ **BAILEY, William D., FN, USN**, for heroic conduct in rescuing a man from drowning in Hampton River, Hampton, Virginia, on the night of 3 Nov 1960. Witnessing the 35-foot plunge of an automobile which crashed through a guard rail on the high-level Hampton Roads Tunnel approach bridge and fell into the river below, Bailey, who was on his way home to Newport News, immediately stopped his car and leaped from the bridge into the darkened waters. Swimming to the victim, he managed to keep the man's head above water until a rescue squad arrived. Through his prompt and courageous actions in an emergency, Bailey was directly responsible for saving a life.

★ **BRIGHTWELL, John D., AD3, USN**, for heroic conduct on 1 Nov 1960 while serving with Helicopter Training Squadron Eight, Ellyson Field, Pensacola, Florida. While on liberty in Pensacola, Brightwell rushed to the assistance of a woman who was being attacked by a man armed with a pistol. Fatally wounded while grappling with the woman's assailant in the darkness, Brightwell, in sacrificing his own life to protect the life of another, displayed both courage and selflessness.

★ **SMALLWOOD, James E., MM3, USN**, for heroic conduct on 14 Jun 1960 while serving on board *uss Sargo, SS(N) 583*, moored at the Submarine Base, Pearl Harbor, Hawaii. While supervising the operation of charging high pressure oxygen into *Sargo's* storage banks, Smallwood firmly and meticulously carried out the ship's safety precautions requiring isolation of the charging compartment from the remainder of the vessel. Aware of the potential danger involved, he kept the watertight door and bulkhead flappers shut. Smallwood lost his life in a raging fire which broke out during the oxygen charge. Through his steadfast adherence to safety precautions, he undoubtedly prevented further loss of life and probable major disaster.

BOOKS: CHOOSE YOUR SUBJECTS FROM COLD WAR TO COLD WATER

ALTHOUGH THE BOOKS selected for review this month range from think pieces concerning the Cold War and nuclear warfare to swash-buckling historical romances, we can't think of a better title with which to lead off the list than *Seven Miles Down* by Jacques Piccard and Dr. Robert S. Dietz. This, and other titles mentioned here, may be found in your ship or station library.

The relatively unpublicized exploit of Professor Piccard and LT Don Walsh, in which they reached the uttermost depths of the ocean—37,800 feet—off Guam in the Marianas Trench, might very well be compared, in significance to mankind, to the journey of the astronauts to outer space. *Seven Miles* is the story of this, and other preliminary descents. The actual dive, and the circumstances surrounding it, are described in considerable detail. (Even at such a depth, they found sizeable fish.) During an earlier 700-fathom dive in the San Diego Trench, the authors discovered that, despite the tremendous pressure encountered, the half-dozen eggs suspended outside the gondola in a porous container, survived the trip nicely. The book establishes the importance of the ultra-deep submersible in oceanography and points the way to further extensive explorations. For the technical-minded, there is an appendix which gives a detailed description of *Trieste*, a table of her dives, and numerous photographs.

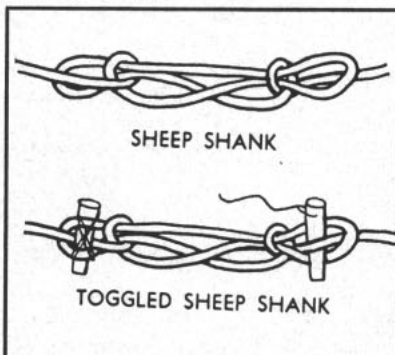
While we are still well below the surface, it might be helpful to consider another offering—*Subsunk*, subtitled "The Story of Submarine Escape," by Captain W. O. Shelford, RN (Ret.). The subtitle just about tells the story. Many yarns have been told of submarine rescue, but this volume attempts to give a world view of submarine disasters and the efforts to escape from sunken subs. Going back to the earliest recorded escape from a vessel disabled below the surface some 100 years ago, the author traces the various methods and devices tested since—early efforts to lift whole ships, emergence through torpedo tubes, the Momsen lung, and the rescue bell. There are also descriptions of notable sub-

marine disasters. Should be of considerable interest to submariners and historians.

Abandoned, by A. L. Todd, continues the theme of fascinating disaster. This is the story of the Greely Expedition (1881-84) during which only six men returned of the 26 who started. Army Lieutenant Adolphus W. Greely was given command of an expedition which was to establish one of a chain of international circumpolar meteorological stations. Unfortunately, he knew nothing about polar life. Nevertheless, he and his men performed extraordinary feats and set a new record in exploration, but relief ships failed to arrive. When the survivors were eventually rescued, charges of cannibalism began to arise shortly after their joyous homecoming. Todd fully describes the incident from beginning to end.

Another true-life hair-raiser is *The Heroes*, by Ronald McKie. This tells the story of two highly-classified attacks by a small band of British and Australian commandos, launched from Australia across 2000 miles of Japanese-held waters against Singapore. The first was highly successful. The second wasn't. No one quite knew what happened; even at war's end, no word, no details, were known to the Allies about the fate of the second group. (The Japanese, while keeping the details of the expedition a highly classified secret, had the utmost respect for the heroism of the men involved. They praised them to their own troops as supreme examples of courage and patriotism, and considered them "heroes" comparable in every way with the famous names in their own military tradi-

Grains of Salt—



tion.) The author presents his story both from the Allied and Japanese points of view.

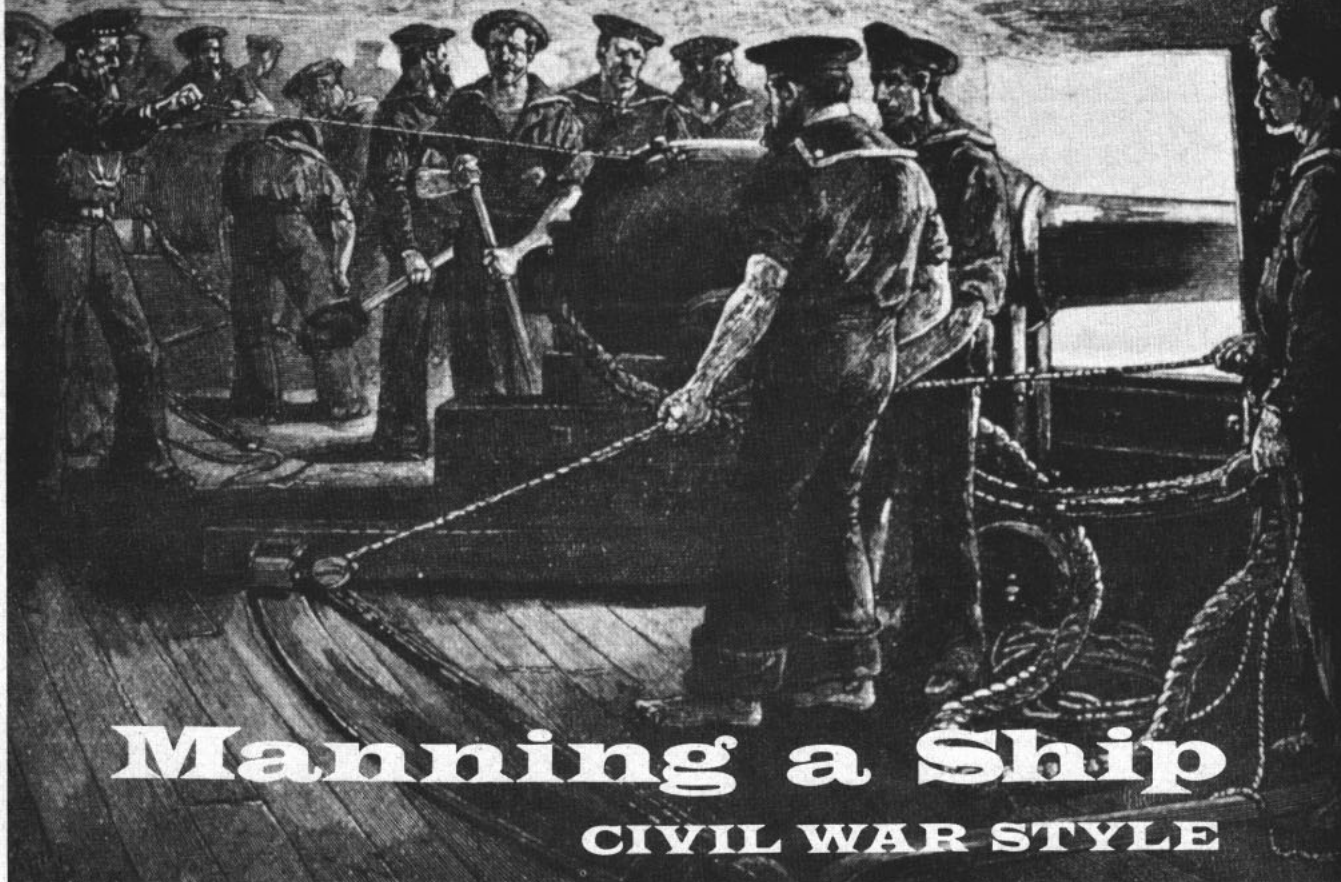
The War Called Peace, by Harry and Bonaro Overstreet, and *The Necessity for Choice*, by Henry A. Kissinger, are two selections of an entirely different character. *War Called Peace* is about Khrushchev, his purposes and his tactics. Does he offer a new brand of communism that has in it glimmers of hope for peace and freedom, or is he merely a more shrewd and dangerous strategist for a communism that has never changed and shows no intention of changing? As in their earlier book, *What We Must Know About Communism*, the Overstreets maintain that we must try to learn the nature and intentions of our possible opponents.

The Necessity for Choice is a serious book, addressed primarily to the politically knowledgeable, in an attempt to define the major issues of foreign policy that will confront the United States in the 1960's. Professor Kissinger does not believe that simple virtue and persistence are enough to solve such problems as arms control, the possibility of reunification of Germany, NATO, the conduct of diplomacy, the concept of limited warfare, and the emergence of new nations. After discussing the process of political evolution, he concludes with an examination of the roles of the policymaker and the intellectual in a bureaucratic system.

For somewhat lighter reading, you might consider this month's fiction offerings.

Send A Gunboat, by Douglas Reeman, is a nautical yarn concerning the efforts of the skipper of a tired, old—and unduly small—gunboat to rescue the British residents of a small island off the coast of China who are threatened by a Chinese communist invasion. The hero is compelled to combat bureaucracy, communists, a mutinous crew, reluctant rescuees and, of course, *The Girl*, before he finds a safe harbor in the final pages.

Daishi-San, by Robert Lund, is a little different. This is based on the life of Will Adams, a seaman-adventurer in the times of Queen Elizabeth. After sailing with Drake, he has adventures in just about every port in the world, finally ends his career in Japan as an advisor to a shogun. Colorful and easy to read.



Manning a Ship

CIVIL WAR STYLE

There's a vast difference between the ships of today's Navy and the sailing warships of the Civil War era. But one thing both the old and the new have in common is a manning organization. Then as now, crew members were assigned to duty stations and the cleaning, berthing, and messing bills established. Then as now, there were different duties for different ratings.

Here is one of the first detailed set of instructions, in narrative form, for the manning of a ship of the old Navy. It was written by LCDR Stephen B. Luce in 1863 and appears in his "Seamanship," a publication that for many years was one of the Navy's main textbooks.

S. B. Luce was one of the Navy's all-time greats. Throughout his 48-year career he had a keen interest in enlisted personnel and in training. He was instrumental in founding the Navy's apprentice system, the Naval War College, and the forerunner of the present Naval Training Center system.

Perhaps his strongest interest was seamanship—a subject in which he was an acknowledged master. He was one of that rare breed, a master seaman who could—and did—write about seamanship in a way that did credit to his knowledge. He retired as a rear admiral in 1889.

WHEN A NEW SHIP goes into commission, the proper and early organization of officers and crew is a subject of the first consideration, and one which calls for the earnest and exclusive attention of the executive officer, upon whom this duty principally devolves.

There is one rule that should be invariable, namely: that he, the executive officer, should be "up and doing"

every morning, by daylight.

Daily, weekly, and monthly routines are established in many ships for the express purpose of securing a regular system of carrying on duties, drills and exercises. Besides organization proper, there are certain other matters which may be classed under the same general head, and which belong to every well-ordered ship.

Cleanliness, for example, is absolutely indispensable, and as it bears directly upon health, should receive every attention.

It has been said of Lord Collingwood that he "... carried his system of arrangement and care to such a degree of perfection, that perhaps no society in the world of equal extent was so healthy as the crew of his flagship. She had usually 800 men; was, on one occasion, more than a year and a half without going into port, and during that time never had more than six and generally only four persons on her sick list. This result was occasioned by his attention to dryness (for he rarely permitted washing between decks), to the frequent ventilation of the hammocks and clothes, to the creating of as much circulation of air below as possible, to the diet and amusement of the men; but above all, by the contented spirits of the sailors, who loved their commander as their protector and friend." These few sentences are a fund of good advice.

SILENCE IS ONE of the evidences of good discipline, and the crew soon acquire the habit, if properly instructed by the precept and example of the officers. Hailing the deck from aloft, giving orders in an un-

necessary loud tone, and useless repetitions of commands, should not be tolerated.

"Hark! the boatswain rudely bawling," is no poetic license in some ships, while in others the "pipe" is used almost exclusively to the great saving of noise.

The pipe to meals consists of three distinct parts. For "turning to," the same may be used, omitting the middle part. This change alone saves the voices of the boatswain and his mates three times a day, and is certainly preferable to the old method.

Calls for hammocks and for boats may be made up from the following and their combinations:

The pipe of *attention* (used by the boatswain to summon his mates).

The pipe to *haul*.

The pipe to *belay*.

The pipe to *heave around*.

The pipe to *veer* (which may be repeated one or more times).

The pipe for *side boys*.

The pipe *down*.

The drum and bugle may also be used for calls and signals.

An improvement in calling the crew on extraordinary occasions, when the voice is used, may be made by dropping the "All hands," and calling out distinctly what is required—such as "Reef topsails."

Alacrity is another essential; a crew should be habituated as early as possible to move smartly about the decks. When all hands are summoned on deck, they should go up the ladders on the run.

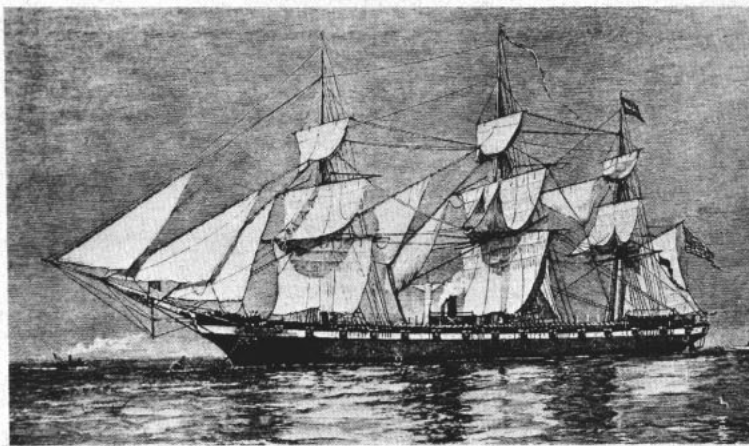
IN RESPECT TO internal organization, the French men-of-war are probably not excelled by those of any other nation. Their method seems to leave little to be desired for stationing a crew. The watch bill may be said to be the key to our system of stations—the quarter bill of theirs.

It is said to be no unusual performance for a French line-of-battle ship, not six months in commission, to heave-in 90 fathoms of chain and make all sail within 14 minutes from the signal to "get underway." A topsail will be shifted in little more than seven minutes and a half. A whole squadron has been known in a gale, with a heavy sea running, to strike topgallant masts in nine minutes. A screw line-of-battle ship was observed to single-reef her topsails in rather less than two minutes and 25 seconds.

Such expedition is very becoming to a man-of-war, and is attained, first, by carefully stationing the crew; and secondly, by regular and systematic exercises.

Organization includes the Berthing, Messing, Watching, Quartering and Stationing of the crew.

• **Berthing.** Berthing requires the earliest attention, and the operation may be facilitated by having a plan of the decks, showing the hammock-hooks of every available berth. The watches should be distributed equally



BROADSIDE VIEW—uss Hartford is an example of the type of ships in which LCDR Stephen B. Luce sailed.

on each side of the ship so that when one watch is piped up, the other will not be left entirely on one side.

Boatswain's mates and men liable to a call at any time of the night should be berthed near the hatchways; quartermasters, marines and others who keep watch and sleep in the morning, should be berthed where they will not be disturbed after all hands are called. At least one boat's crew should be so berthed that they can be called at a moment's notice.

The boys of the ship must be berthed together and separate from the rest of the crew.

On a tack over the forward hammock-hook of each billet is hung the number, corresponding to the hammock, neatly painted on a small tin plate.

• **Hammocks.** The hammock numbers correspond to the watch numbers, the odd—such as 1, 3, 5, 7—for the starboard; the even—such as 2, 4, 6—for the port watch. In quartering the crew, all the starboard watch are to be distributed among the odd-numbered guns, the port watch among the even, presuming that the force and intelligence of the crew are equally divided. In this way when preparing for action at night, at least half the battery may be fully manned, while the watch below are bringing up and stowing the hammocks.

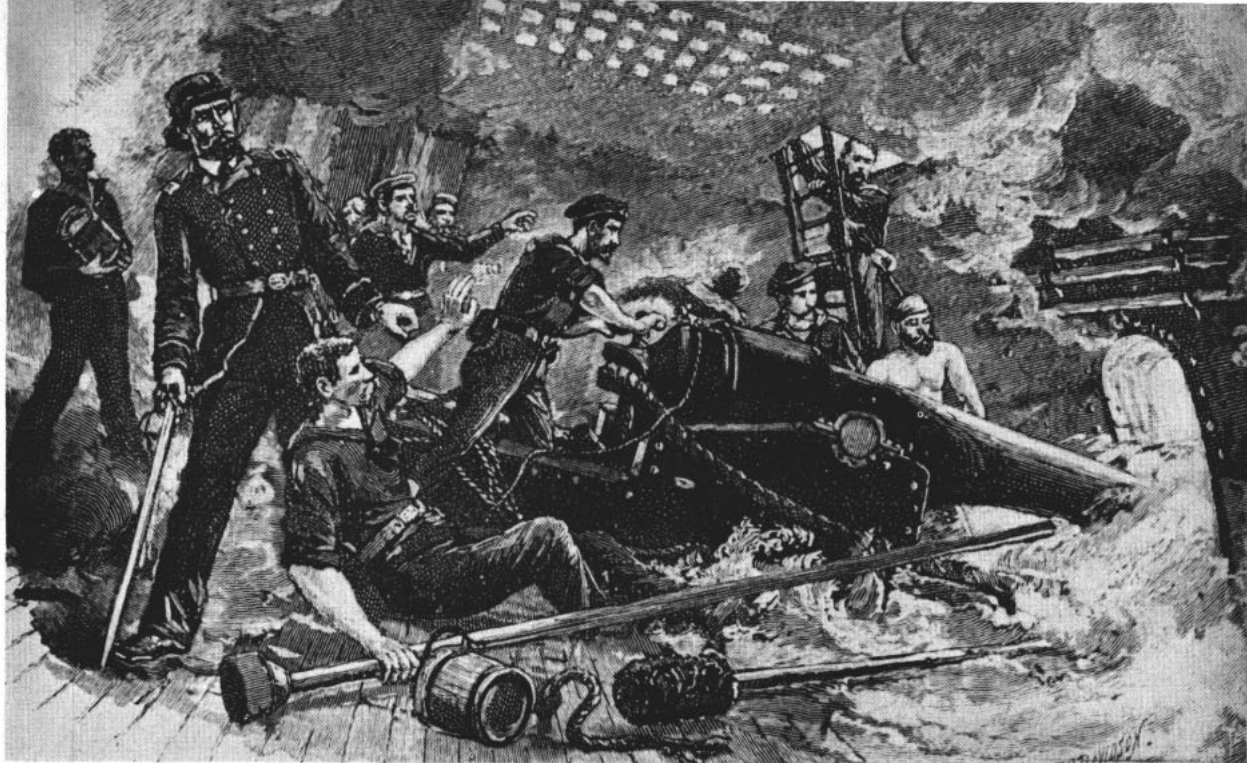
On each hammock should be sewed the owner's watch number, neatly painted on a piece of canvas, cut in a regular and symmetrical form.

Hammocks are lashed up by taking seven marling turns with a manila, or white rope (untarred hemp) lashing. "Tie-ties" are now preferred to lashings, as the hammock can be tied quicker than lashed. They do not wear out the hammock as a lashing does and are much neater. Every hammock should have three good nettle stops on the head for stopping on the girtlines, and two on the foot. Some officers prefer having the stops put on the girtlines.

As hammock girtlines are usually fitted to trice up alongside the masts, the rule for stopping-on hammocks is with the numbers "up and out."



LCDR Stephen B. Luce, USN



STARBOARD LIST — Water rushing in on below-the-deck gun mounts was a major hazard in ships of Civil War days.

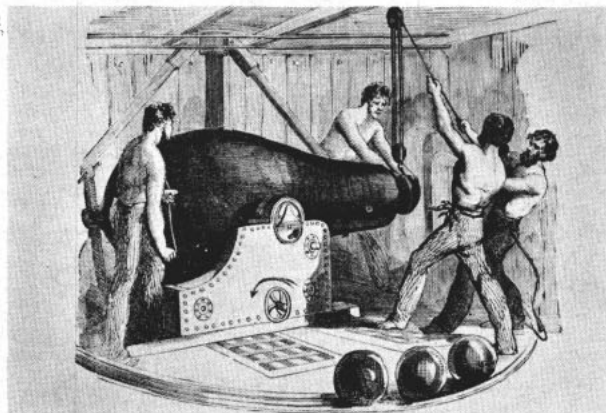
A regular station-bill for stopping-on hammocks, especially on board large ships, conduces to order and saves time and annoyance.

Bedding may be effectually aired in port by stopping it on the hammock girtlines by the station-bill, thus securing more system than by the usual method.

A complete set of clean hammocks should always be on hand. After scrubbing, they are turned in by guns' crews, each one carefully inspected to ascertain if it has been properly scrubbed—then rolled up, placed in a bag or case having the gun's number painted on it and taken to the sail-room where the sailmaker receives it. A torn or badly stained hammock should be left out and given to the sailmaker's mate to be exchanged.

Hammocks stow in their own parts of the ship. A gauge to level them at the right height above the rail, and a hoop through which they are required to pass, are sometimes used.

• **Sea Bags.** Bags should be marked with his "ship's number," so that when a man is shifted to another part of the ship, his hammock number alone is changed.



BIG SHOT — Line drawing shows sailors loading a 15-inch gun of the type used on turrets of USS Monitor.

The arrangement for stowing bags should engage the serious attention of the executive officer, for on it depends much of the comfort and health of the crew.

The principal points to keep in view are these: Facility to get at them at any time for the purpose of shifting into dry, working, or mustering clothes; stowed so that any one bag can be readily obtained; to present a uniform and neat appearance; and to be measurably secure from theft.

The crew are expected to dress for the day during the breakfast hour. It has been found convenient to have a board arranged with slips, on each of which is painted the name of an article of uniform—such as "white frocks" or "blue trousers." The board is hung in some conspicuous part of the ship, as at the main hatch or scuttlebutt.

Before quarters for inspection, the bags should be neatly stowed, and not touched again until after supper, when the crew shift into blue woollen clothes for the night. As a general rule, no one is allowed to have his bag out of the regular time.

The men should be allowed to have their bags at least once a week for the purpose of overhauling, mending, marking, and airing their clothes. Saturday afternoon is generally devoted to this. When circumstances permit, bags are piped up twice a week, and Wednesday given for the same purpose.

• **Ditty-Bags.** These contribute much to the comfort of the men and should be allowed. That they may not become a nuisance, they should be made of prescribed dimensions and a definite place assigned for their storage. Ditty boxes are not permissible.

• **Clothing.** Each piece should be distinctly marked with the owner's name and his ship's number. Working clothes have no recognized existence. If every man were required to have a couple of jumpers and a pair of overalls made of strong cotton-stuff, like Kentucky jean, or denim, he would work with greater freedom and save his more expensive clothing for special occasions.

• **Pea-Jacket Bags.** One for each part of the ship has been found useful. They should be distinctly marked and in a place assigned for them. "A place for everything and everything in its place" is a rule particularly applicable to a man-of-war.

• **Messing.** The crew is divided into messes of 12 or 14 members each, as may be found convenient. Each mess has its own cook appointed from among their number. It is his duty to draw provisions, take care of the mess-traps and clean the berth-deck. As a general rule, the members of each mess take it by turns to act as cook, week and week about.

Petty officers mess by themselves and employ "steady cooks," that is, men of inferior rating who, for certain considerations (generally their rating) take charge of the mess for an indefinite period.

Steady cooks are in some respects desirable; under a good master-at-arms they soon become thoroughly drilled in their duties—they keep their messes in good order and the berth-deck dry and clean.

• **The Watch-Bill.** In filling important stations, such men are selected as by their long services and capacities are best suited to them. By ascertaining the length of time each man has been at sea and in the service of the United States, the stations they held in their last vessel—being also governed in some measure by the general bearing, manner and appearance of each—you will be able to appoint them to their proper stations, selecting the best from among the seamen for petty officers.

BOTH IN WATCHING AND QUARTERING a crew, they should be so stationed that they will find their general duties to be in some particular part of the vessel. For instance, a forecandle-man or foretop-man should be stationed on or near the forecandle and around the foremast and quartered at one of the forward guns; the maintop-men amidships; the mizzen-top-men, after-guard and marines abaft; the carpenters in the vicinity of the pumps, and so on.

A system of partners is also valuable in the performance of duty. That is, having the men divided off into pairs, so that each man may know his partner and be responsible for his station when he is absent from the vessel or deck. The partners should be stationed at the same gun but on different sides. They should have the same station in different watches. There should be but one in the same boat and, if possible, the other should

not belong to any boat. Their hammocks should hang as near together as possible. They should mess together. Thus, they will be united in a common feeling of support.

THE PETTY OFFICERS — boatswain's mates, quarter-masters, quarter-gunners, captains of the forecandle and tops—are appointed from those seamen whose characters and capacities have entitled them to advancement to these stations where they are intrusted with much responsibility and authority and can set an example to the rest of the crew. There are other petty officers, such as master-at-arms, ship's corporals, coxswains, ship's cook, etc.

On the forecandle are stationed able seamen—men acquainted with the duties of a sailor—together with a few ordinary seamen and landsmen.

In the tops are stationed seamen, ordinary seamen—active, able-bodied men. Also a few boys of the first class to handle the light sails.

The mastmen and captains of the after-guard should be elderly seamen, if there are any on board who are not petty officers—who, though incapable of performing the rough work of a forecandle or top, may fill these stations well. (Some maintain, however, that the mastmen should be young, active and intelligent seamen.)

The after-guard should be made up of a few seamen, ordinary seamen and landsmen. Mechanics, musicians and servants are generally watched in the after-guard.

IDLERS ARE those who are not watched, having day duties to perform of a peculiar nature, such as master-at-arms, the yeoman who has charge of the store rooms and keeps the expenditure book, the cooks, and so on. These men, though not required to keep a regular watch, should have stations allotted them in all evolutions.

A number of officers in all vessels are termed idlers: The captain or commander, first lieutenant or executive officer, navigator, paymaster, surgeon, marine officer, chaplain, clerks, and the midshipmen who are stationed on the lower decks. They keep no watch but are on duty during the day.

The marines are always watched at sea, and perform duty on the quarter-deck with the after-guard.

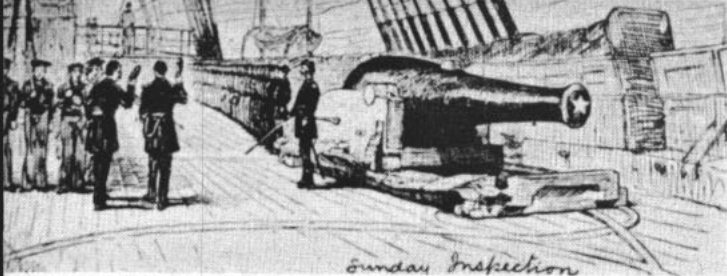
A few of the smaller boys, who are not distributed among the tops to work the topgallant and royal-yards and hand the light sails, are stationed on the quarter-deck to stand duty as messengers of the watch.



STONING — Even old-timers probably won't recognize this type holystone used to clean the wooden decks.

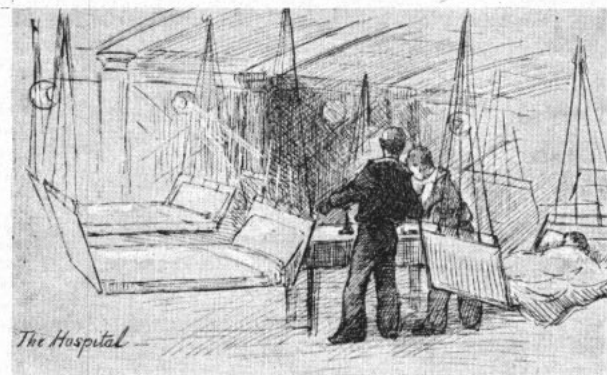


CROSSING-THE-LINE ceremonies of the 19th century, replete with Neptune's Rex, were part of Navy life



STAND-BY — Sailors of Civil War era are lined up for Sunday inspection, which is not common in today's Navy.

Stations for work aloft should be arranged as to give each man about the same amount of canvas to handle. To do this, take the complement allowed the ship and deduct from it the officers, marines and the idlers—and the remainder will be the number of working hands for the watch and station bills. From this number take the boatswain's mates, quarter-masters, etc., and distribute the remaining strength according to the canvas on the lower and topsail yards.

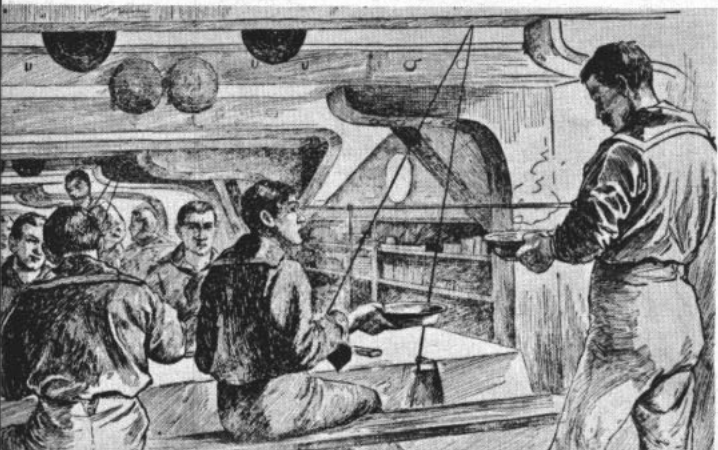


MEDICAL CARE — Line drawing shows the arrangement of sick bay facilities found in ships of Civil War days.

AFTER THE WATCH-BILL is made out, having divided the men equally into two watches, starboard and port, the other station-bills are formed: Tacking & wearing, reefing & hoisting, making & shortening sail, mooring & unmooring, getting underway & coming to anchor. Take care to have at each station an equal number of each watch. In this way, with but one watch on deck, the vessel may be worked and all stations manned. This divides the force, and you have an equal number of men on each side of the deck.

Boats' crews should be selected as soon as possible, particularly if the ship is lying in the stream when their

SWINGING CHOW — Mess tables in early sailing ships hung from overhead to lessen effects of rough seas.



services will be in constant demand. They should be placed in charge of coxswains and taken from the different parts of the ship so as not to weaken one part more than the other.

While at sea there should be a full lifeboat's crew in each watch, and in case a man falls overboard they, and they only, are to man the boat.

If it were the custom to call the watch at night 10 or 15 minutes before eight bells, detail all reliefs and the lifeboat's crew, then there would always be a full watch on deck wide awake and ready for work. The ship when under canvas in bad weather would not then be jeopardized twice each night.

IN SELECTING MEN for captains of guns, take those petty officers who are not appointed to more important stations; men long accustomed to the gun exercise on board ship—steady, trusty, able-bodied men with good sight. After supplying the guns with first captains, proceed upon the same principle in selecting second captains from among the seamen. Then select the spongers and loaders (who shall be light, active men), shell men, handspike men, etc.

For the first division of boarders select the most effective men. For sail-trimmers, select men stationed on the spar deck. For the wheel, select the best helmsman in the vessel. At the relieving tackles, station an officer or quartermaster, with a few men to steer the vessel in case the wheel or tiller ropes are shot away. In the magazine, station the gunner and his mates, and the ship's cooper. Select for the stations below (for passing shot and powder) the men who would be least effective on deck, the men who are least capable of acting promptly in the heat of action. Select active topmen for the master's division, to attend the stoppers and remain in the tops.

THE FIRST LIEUTENANT, under the direction of the commander, directs the gun batteries. The navigator, under the direction of both and assisted by the boatswain on the forecastle, attends to the maneuvers. The other lieutenants are each stationed to command a division.

The marines are in the waist or on the poop. Some are stationed in each top to annoy the men at the enemy's guns. The midshipmen are distributed about in the tops and at the divisions to the best advantage.

Under the present system the men remain on board the receiving ship until the vessel fitting out is enough advanced to receive the new crew. No pains should be spared to get a good master-at-arms, good ship's cook, good painter, good cooper, good shoemaker and a good fiddler.

Mess cooks should be selected and the master-at-arms and ship's cook should go on board to see if all the galley arrangements and mess-chests are complete. It is found convenient, generally, to take the men from the receiving ship after dinner, for it is easier to have supper as the first meal on the new ship.

When the watch-bill is complete it will take a good clerk but a few hours to fill up the billets. If the billet slips are handed to the men before they leave the receiving ship, they can shoulder their bags and hammocks, march on board their own ship, stow their hammocks in the proper netting and their bags in their own mess, and go to general quarters the next moment, if need be.

Blank forms of billets should be printed on strong

paper so that the men may keep them in their caps without wearing out too soon.

• Following is a form of billet to be given each one of the crew before going into commission:

WATCH NUMBER — 2. Charles Anderson (Captain of forecastle)

Reefing	Head bowlines
Tacking and Wearing	Forecastle. Let go head bowlines. Let go and shorten—in fore tack and belay it.
Getting underway	Head bowlines. Downhauls and head-sheets.
Anchoring	Head bowlines. Sheets and tack. Downhauls
Loosing	Fore-topmast staysail.
Furling	Head bowlines and downhauls. Staysail.
Bending sails	Clear away jib-stay. Reeve it. Hook halliards. Man downhaul. Hook lower block of sail burton and yardarm whips.
T.G. and Royal Yards	Fore-topgallant yard rope.
Mooring and unmooring	Forecastle. Port.
Quarters	No. 8 gun. First captain. Second boarder.
Boat	Launch. Chief of howitzer.
Mess	No. 2.

WATCH NUMBER — 76. Peter Brown (Seaman)

Reefing	Main-topsail and main-topsail halliards.
Tacking and Wearing	Main clew-garnets, main tack.
Getting underway	Loose main-topsail.
Anchoring	Main-topsail clewlines or clew-jiggers. Main brace.
Loosing	Main-topsail.
Furling	Main-topsail.
Bending sails	Hook and overhaul burton. Yard arm whip. Toggle buntlines. Top-sail yard to overhaul rigging and get ready.
T.G. and Royal Yards	Main topgallant yard rope.
Mooring and unmooring	Take off nippers and range cable.
Quarters	No. 8 gun. First loader. Second boarder.
Boat	Third cutter.
Mess	No. 6.

• Duties of men in different parts of the ship:

Forecastle Men rig and unrig the bowsprit, jib-boom, flying-jib-boom, fore-mast and fore-yard.

Bend and unbend, loose and furl the head sails, fore-sail, lower, and topmast studding-sails.

Reeve and unreeve, overhaul and hook cat and fish; pass ring-stopper and shank-painter, lash cables for clearing hawse, and stow anchors.

Lash fore-runners and tackle; hook the top-tackle blocks to top-pendants and reeve fore-jeers.

Fore-top Men reeve and unreeve top-pendant; fit and

reeve all standing and running rigging above the top.

Bend, unbend, loose, reef, and furl fore-topsail, top-gallant sail and royal; main top-mast and topgallant stay-sails, set and take-in fore-topgallant, studding-sail, and hook the burton for topmast studding-sail.

Shift fore top-mast and topgallant-mast, topsail, and topgallant yards, and put whips on yards and stays. Set up topmast and topgallant and royal backstays.

Main-top Men have much the same duties as the fore-top men in their own tops. Working with the watch a main-top man takes the lead in the port channels.

Mizzen-top Men loose and furl the peak of the spanker; clean and keep in order the port channels and port side of the quarterdeck or poop.

After-guard Men have the care of the starboard side of quarterdeck and poop, and starboard mizzen channels. Those stationed on the main yard bend, unbend, reef, loose, furl and shift the main-sail. Others man the main-trysail and spanker. They look out for the mizzen rigging and cross-jack yard.

Quarter-gunners rig and unrig the main mast and main yard. They turn in, set up, spar and rattle-down main and futtock rigging. Bend, unbend, loose, reef, and furl main sail, main-stay sail and main-topmast studding sail. They attend the lower studding sail, outhaul and after-guy, the fore-topmast, studding-sail tack and boom-brace, main tack and sheet.

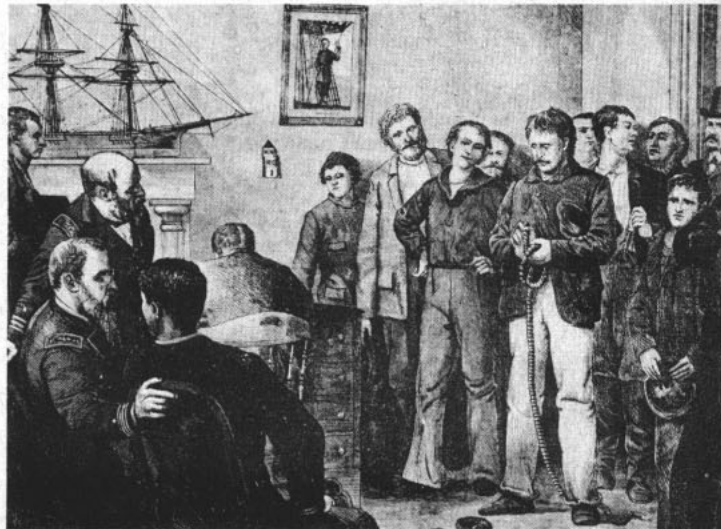
They reeve main-jeers, hook main-top tackles and look out for sheet anchors. They attend at the capstan when heaving in. Also, they look out for the batteries, ordnance stores and life-buoys.

Quarter-Masters, being generally main-yard men, work on the main yard and in the main rigging. To them belongs everything pertaining to the sounding gear, signal gear, and signals.

At sea they attend to the conning (steering) of the ship and to the heaving of the deep-sea lead and the log.

That was the life of a Navyman aboard ship back in the Civil War era. It's a lot different from today's streamlined ships and the jobs of their crews. But then, as today, each man had a job to do, and on the way he did his job depended the reputation of his ship.

PROBLEM KNOT — Potential Navy recruits of nineteenth century were examined to determine seamanship ability.



TAFFRAIL TALK

THE U. S. SIXTH FLEET, as most everyone knows by now, provides America with a first line of defense, massive deterrent power, and a good share of our offensive "strike back" capabilities in the Mediterranean sector of the world. The Fleet must be maintained in a constant state of operational readiness, alert for any eventuality in that neck of the woods. Frequent training maneuvers in company with units of our NATO allies, too, keep ships, planes and men hopping for days and weeks at a stretch. All of this adds up to a lot of hard work—and Sixth Fleet sailors, deservedly, have won a reputation for being among the hardest working around.

There can be compensations in Med duty, however. We received a release from the attack aircraft carrier *Shangri La* (CVA 38) recently, for example, which tells of one such compensation—a visit to Cannes, France. Seems that while enjoying a short break from their rigorous routine in that sunny mecca on the southern French coast, *Shangri La's* hangar bay number one was converted into a stage, and the crew was treated to a fashion show featuring the newest Paris creations—plus five stunningly statuesque French models.

A picture, it's been said, is worth 10,000 words—and photos accompanying the release furnished more than ample evidence that *Shangri La* sailors enjoyed the show immensely. Were we betting men, however, we'd be willing to risk a small sum in a friendly wager that there aren't five men aboard that carrier right now who could tell you what any of those models were wearing.

★ ★ ★

A brief news item recently bestowed upon us by a Moffett Field-based attack squadron deals with the activities of the squadron mascot, a "newly-discovered" species of skyhawk they've named Rough Raider. Rough Raider, a real live bird, accompanies the squadron CO on his weekly plane inspection rounds—the idea being, as we understand it, that the hawk's piercing stare symbolizes the thorough once-over each plane receives as part of the squadron's aviation safety program.

Furthermore, according to the release, the squadron is so impressed with its new feathered friend it has even proposed a scientific name for him—"falco skyhawkus durandi"—and has forwarded its recommendation to the Smithsonian Institution for approval.

What also intrigued us, however, was the name of the PIO who sent us said release. It was—so help us—LT A. S. Falconer.



The All Hands Staff

The United States Navy

Guardian of our Country

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends. The United States Navy exists to make it so.

We Serve with Honor

Tradition, valor and victory are the Navy's heritage from the past. To these may be added dedication, discipline and vigilance as the watchwords of the present and future. At home or on distant stations, we serve with pride, confident in the respect of our country, our shipmates, and our families. Our responsibilities sober us; our adversities strengthen us. Service to God and Country is our special privilege. We serve with honor.

The Future of the Navy

The Navy will always employ new weapons, new techniques and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war. Mobility, surprise, dispersal and offensive power are the keystones of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past. Never have our opportunities and our responsibilities been greater.

ALL HANDS

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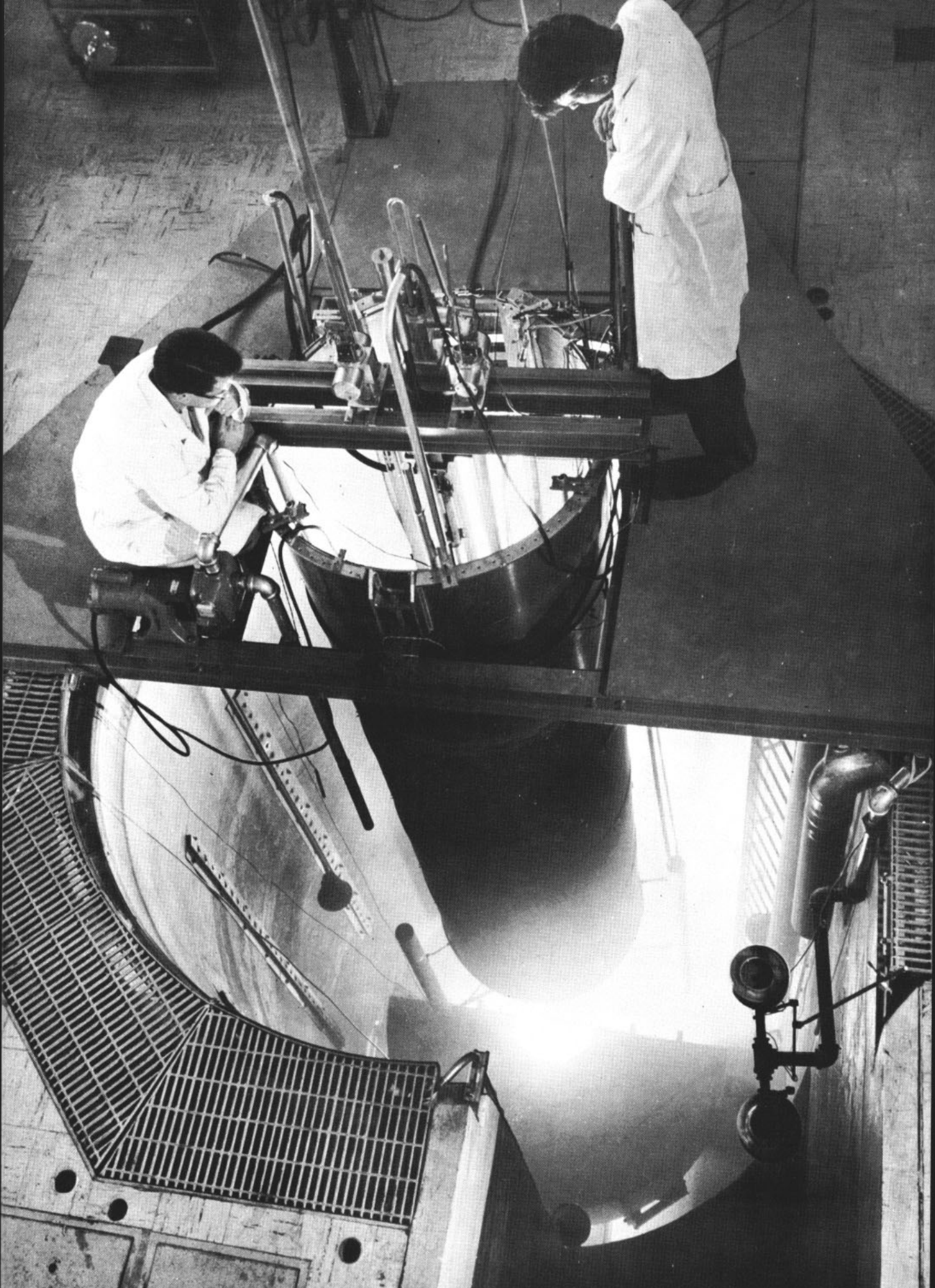
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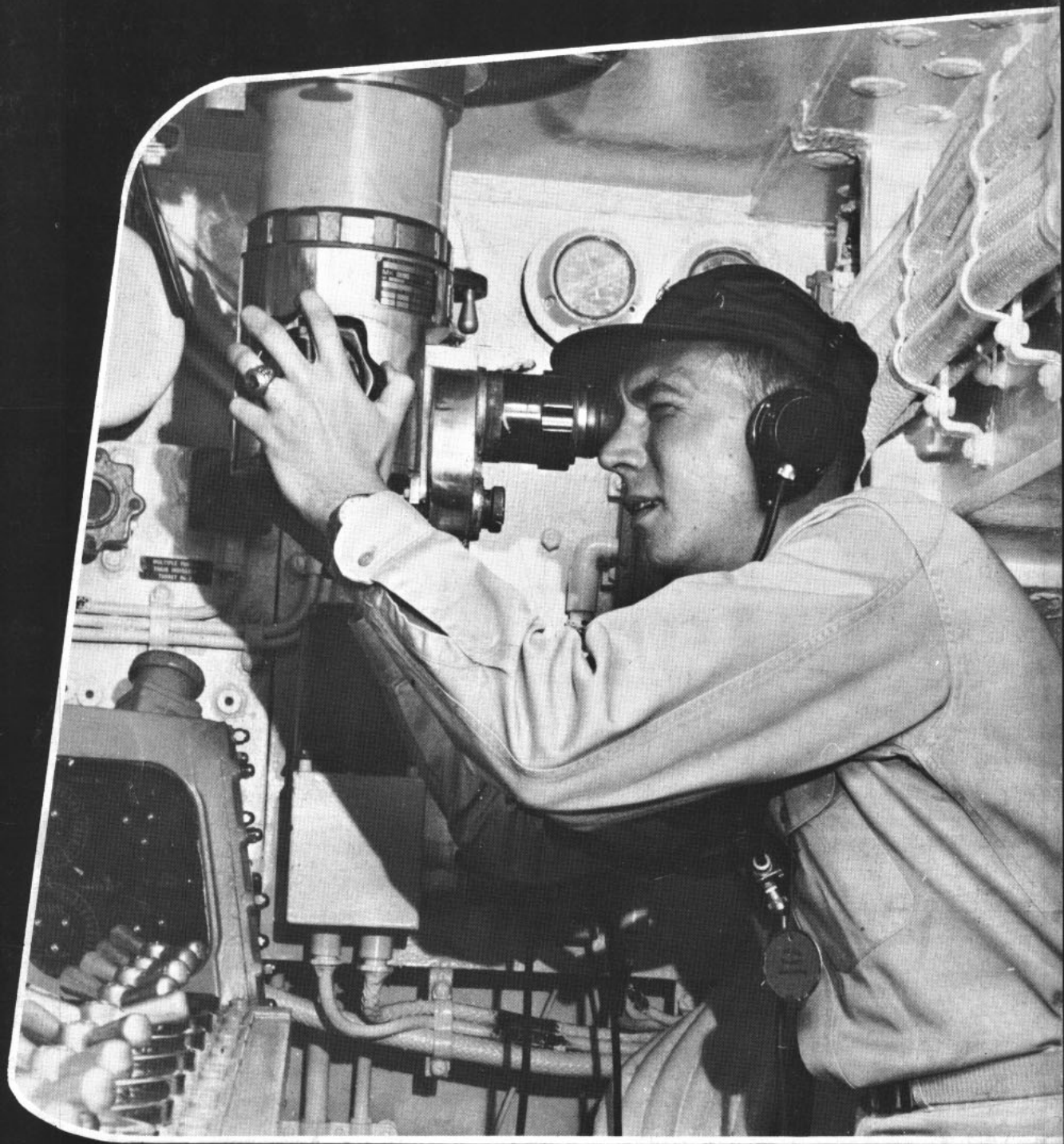
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• AT RIGHT: FOR MEDICINE — A nuclear reactor facility like this one will be installed at National Naval Medical Center, Bethesda, Md., as part of the Armed Forces Radiobiology Research Institute. It will be used in the study of radiation effects by scientists from the services, as well as other government and civilian agencies.





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RESPONSIBILITY